THE LANCET

A Journal of British and Foreign Medicine, Surgery, Obstetrics, Physiology, Chemistry, Pharmacology, Public Health, and News.

Telegrams—LANCET, WESTRAND LONDON *Telephone*—GERRARD 4314 & 4315. *Offices*—423, Strand, London, W.C.

No. VI. OF VOL. II., 1927. **No. 5423. Vol. CCXIII.** LONDON, SATURDAY, AUGUST 6, 1927 Founded 1823. Registered as a Newspaper. Published Weekly. **Pp. 112—Price 1s.** Annual Subscription. Inland £2 2s. Abroad £2 10s.

OXFORD MEDICAL PUBLICATIONS

SEE PAGE 2.

DISEASES OF THE RECTUM AND COLON
AND THEIR SURGICAL TREATMENT.
BY
P. LOCKHART-MUMMERY,
F.R.C.S.ENG., M.A., M.B., B.C.CANTAB.,
Senior Surgeon to St. Mark's Hospital.
Over Two Hundred Plates and Illustrations. Price 25s.
Baillière, Tindall & Cox, 8, Henrietta-street, Covent Garden.

ON THE BREAST.
By DUNCAN C. L. FITZWILLIAMS,
C.M.G., M.D., Ch.M., F.R.C.S. Ed. and Eng.
Royal 8vo. 456 pp. 2 Plates, 166 Illustrations. 30s. net.
LANCET.—"The book is packed with accurate clinical observations and bears evidence throughout of extensive clinical experience and wide reading on the part of the author."
Wm. Heinemann (Medical Books) Ltd., 20, Bedford-street, London, W.C.2.

JUST PUBLISHED. With 16 plates. Demy 8vo. 9s. net. Postage 6d.
PYELOGRAPHY:
ITS HISTORY, TECHNIQUE, USES AND DANGERS.
By ALEX. E. ROCHE, M.A., M.D., M.Ch., F.R.C.S.
With an Introduction by SIR JOHN THOMSON-WALKER, F.R.C.S.
London: H. K. Lewis & Co. Ltd., 136 Gower-street, W.C.1.

SEGREGATION AND AUTOGAMY
IN BACTERIA.
A CONTRIBUTION TO CELLULAR BIOLOGY.
By F. H. STEWART, M.A., D.Sc., M.D.,
Major, Indian Medical Service (Retired).
With 4 Plates and 23 Tables. Price 7s. 6d. net; postage 3d.
Adlard & Son, Limited, 21, Hart Street, W.C.1.

DISEASES OF THE HEART.
THEIR DIAGNOSIS, PROGNOSIS, AND TREATMENT BY MODERN METHODS.
With chapters on the Ink Polygraph, Clinical Electro-Cardiography, X-Ray Examination, and Anæsthesia in relation to Cardio Vascular Affections.
By FREDERICK W. PRICE, M.D., F.R.S. (EDIN.),
Physician to the National Hospital for Diseases of the Heart; Consulting Physician to the Royal Northern Hospital, London.
Pp. 534. With 249 text figures, including 32 sphygmograms, 92 polygraphic tracings, and 87 electrocardiograms.
New (Second) Edition. 21s. net.
"The most valuable and comprehensive guide to the study of Cardiology with which we are acquainted."—NEW YORK MEDICAL JOURNAL AND RECORD.
"In our opinion the book is indisputably the most authoritative contribution to Cardiology of our time."—FRANCO-BRITISH MEDICAL REVIEW.
"A book which we believe is destined to remain the standard work on Cardiology for many years to come."—AMERICAN MEDICINE.
Humphrey Milford, Oxford University Press, Amen House, Warwick Square, London, E.C.4.

JUST PUBLISHED.
12 Col. Plates. 194 Text-figures. 12s. 6d. Postage 6d.
A HANDBOOK OF OPHTHALMOLOGY.
By HUMPHREY NEAME, F.R.C.S., and
F. A. WILLIAMSON-NOBLE, F.R.C.S.
London: J. & A. Churchill, 7, Great Marlborough-street, W. 1.

BY A. G. TIMBRELL FISHER,
M.C., M.B., F.R.C.S.

INTERNAL DERANGEMENTS OF THE KNEE-JOINT.
Their Pathology and Treatment by Modern Methods.
With 79 Illustrations on 40 Plates. Demy 8vo. 12/6 net, postage 6d.
ARCHIVES OF SURGERY:—"Throughout the book there is evidence of exhaustive investigation by the judicial mind of a trained surgeon of wide experience. We cannot speak too highly of this valuable contribution to medical literature."

MANIPULATIVE SURGERY: Principles and Practice.
With 62 Illustrations. Demy 8vo. 7/6 net, postage 5d.
BRITISH JOURNAL OF SURGERY:—"Mr. Fisher does well to expose the principles of manipulation to light and reason."
London: H. K. Lewis & Co. Ltd., 136 Gower Street, W.C.1.

JUST READY.
THE NEW
MAYO CLINIC VOLUME
PAPERS OF 1926.
See Saunders' Advertisement on Page 3.

FIFTH EDITION. Pp. v + 251. With Coloured Plate and 98 other Illustrations. Price 8s. 6d. Postage 6d.
REFRACTION OF THE EYE.
By ERNEST CLARKE, C.V.O., M.D., F.R.C.S.
"One of the best if not the best book on the subject in this or any other language."—EDINBURGH MEDICAL JOURNAL.
Baillière, Tindall & Cox, 7 & 8, Henrietta-st., Covent Garden, W.C.2.

NOW READY.
THE CONDUCT OF MEDICAL PRACTICE
BY
THE EDITOR OF "THE LANCET"
AND EXPERT COLLABORATORS.
See pages 6 & 7.

NOW READY. 4/6 net.
THE TREATMENT OF
CHRONIC DEAFNESS.
BY THE ELECTROPHONOIDE METHOD OF ZUND-BURGUET.
By GEORGE C. CATHCART, M.A., M.D.,
Consulting Surgeon to the Throat Hospital, Golden-square.
Oxford University Press, Amen House, London, E.C.4.

LEWIS'S PUBLICATIONS.

JUST PUBLISHED. Crown 8vo. 7s. 6d. net; postage 6d.
A Manual of GENERAL MEDICAL PRACTICE
By W. STANLEY SYKES, M.A., M.B., B.Ch.(Cantab.), D.P.H.(Leeds), M.R.C.S., late House Surgeon and Extern Midwifery Assistant, St. Bartholomew's Hospital; Matthews Duncan Prize, 1919, St. Bartholomew's Hospital.
Extract from Preface.—"Most medical books are written and most lectures delivered by hospital men from the hospital point of view, and the student, when he goes into practice, soon finds out their limitations as well as his own. He finds that he has to deal with different diseases under different conditions about which he has been told nothing at all. The present work is written from the general practice point of view, with special reference to the non-hospital diseases. It also deals with the conduct and organisation of practice."

Demy 8vo. 7s. 6d. net; postage 5d.
INCAPACITY OR DISABLEMENT
in its Medical Aspects.
By E. M. BROCKBANK, M.D.(Vict.), F.R.C.P., Hon. Physician, Royal Infirmary, Manchester.
". . a book which we can cordially recommend . . . will prove of the utmost value."—THE LANCET.

Royal 8vo. 7s. 6d. net; postage 6d.
AN INTRODUCTION TO THE
LAW AND TRADITION OF MEDICAL PRACTICE
By W. SANDERSON, M.A., LL.B., of the Middle Temple, Barrister-at-Law; and E. B. A. HAYNES, B.A., LL.B., of Gray's Inn, Barrister-at-Law.
". . . a model of concise and luminous statement."
—EDINBURGH MEDICAL JOURNAL.

London: H. K. LEWIS & CO. LTD., 136, Gower Street, W.C. 1.

For the Treatment of ANÆMIAS and CHLOROSIS

PERFECTLY PALATABLE

FERRO-MANGANESE PEPTONATE GABAIL

EASILY ASSIMILATED

A stable concentrated solution of iron and manganese peptonates.

A Powerful URINARY ANTISEPTIC

UROGENINE

GABAIL

A Granular Preparation
Dissolves and Eliminates
URIC ACID
DIURETIC—ANTIARTHRITIC

For the treatment of ARTERIO-SCLEROSIS

IODO-SCILLINE

GABAIL

A combination of
IODO-PEPTONE, SCAMMONY
and SQUILL
CARDIAC TONIC and DIURETIC

Literature and Samples on request.

THE ANGLO-FRENCH DRUG CO., LTD.,

Telephone: Museum 4029 238a, Gray's Inn Road, LONDON, W.C.1. Telegrams: "Ampsalvas, London."

THE SUBCUTANEOUS ARSENOBENZENE

SULFARSENOL

Dr. LEHNHOFF-WYLD'S
SULPHARSENOBENZENE
THE ORIGINAL FRENCH PRODUCT.

Manufactured by the Laboratoire de Biochimie Medicale, Paris.

Approved for use under the V.D. Regulations, 1916.

Specific in—SYPHILIS in all its stages, YAWS, MALARIA, Gonorrheal Complications, Puerperal Infections.

Some years ago a world-famous syphilologist stated that arsenobenzenes by the intramuscular route were therapeutically more active than equal doses given intravenously. To-day thousands of users of SULFARSENOL affirm that statement.

THE SUBCUTANEOUS OR INTRAMUSCULAR INJECTIONS OF SULFARSENOL IN FRESHLY DISTILLED WATER ARE PRACTICALLY PAINLESS.

Sole British Agents:

MODERN PHARMACALS LTD., 2, Calthorpe St., London, W.C.1

Telephone: Museum 0564. Telegrams: "Pharmacals, Kincross, London."

THE LANCET

No. 5423 LONDON, SATURDAY, AUGUST 6, 1927. CCXIII.

CONTENTS

THE WHOLE OF THE LITERARY MATTER IN THE LANCET IS COPYRIGHT.

OLIVER-SHARPEY LECTURES on the Coördination of the Respiration and Circulation with Variations in Bodily Activity. By C. G. DOUGLAS, D.M., F.R.S., Lect. II. 265

ORIGINAL ARTICLES.

The Preparation of Patients for Operation. By W. E. M. MITCHELL, M.B., F.R.C.S. 270

The Relation of Funiculitis to Hydrocele in Egypt. By Prof. ALI BEY IBRAHIM, M.B.E. 272

Diabetic Gangrene Treated by Conservative Surgical Measures. By R. BROOKE, F.R.C.S. 274

CLINICAL AND LABORATORY NOTES.

Character of Cerebral Cerebro-Spinal Fluid in General Paralysis. By HILDRED CARLILL, M.D., and W. E. CARNEGIE DICKSON, M.D. 275

Food Poisoning, with Delayed Nervous Symptoms. By A. H. D. SMITH, M.B., Ch.B. 276

Acute Hæmorrhagic Pancreatitis. By J. D. DHRUV, M.S., F.R.C.S. .. 276

REVIEWS AND NOTICES OF BOOKS.

Mental and Physical Traits of a Thousand Gifted Children. By L. M. Terman and Others. 285

The Early Mental Traits of Three Hundred Geniuses. By C. M. Cox and Others 285

Clinical Pediatrics. Edited by Prof. R. S. Haynes, M.D. 285

Aids to Tropical Medicine. By C. E. Brooke, L.R.C.P., D.P.H. 286

Practical Tropical Sanitation. By E. P. Minett, M.D., D.P.H., and A. G. M. Severn, M.D., D.P.H. 286

Text-book of Biological Chemistry. By James B. Sumner, Ph.D. 286

MEDICAL SOCIETIES.

Royal Medico-Psychological Association: Report of the Lunacy Commission 277

REPORTS AND ANALYTICAL RECORDS.

Lactrex: King's Compound Malted Milk Food.—Buckfast Tonic Wine ... 286

LEADING ARTICLES.

BRITISH-AMERICAN NEUROLOGICAL MEETING 287

MEDICAL OFFICERS AND PUBLIC SCHOOLS 287

CANCER OF THE UTERUS ... 288

ANNOTATIONS.

Notification of Industrial Poisoning 289

The Ross Institute 289

Rectal Ether Analgesia in Labour 290

Tuberculosis among Nurses 290

Retirement of Mr. F. G. Hallett 291

Prophylaxis of Ophthalmia Neonatorum 291

Food of the Japanese 291

Isaac Newton: A Memorial Volume 292

Ultra-violet Radiation and Resistance to Infection .. 292

Congress on Occupational Diseases 292

MODERN TECHNIQUE IN TREATMENT.

CCXXXV.—The Treatment of Diphtheria. By ALEX. JOE, M.D. 293

SPECIAL ARTICLES.

British and American Neurologists. Meeting in London: The Cerebellum—Hughlings Jackson Lecture 301

British Medical Association. Annual Meeting at Edinburgh. Section of Medicine: Insulin Therapy in Diabetes Mellitus.—Acute Lobar Pneumonia.—Pernicious Anæmia 280

Section of Medical Sociology: Municipalities and Voluntary Hospitals 284

A Further Visit to German Spas: Aachen.—Kreuznach.—Bad Münster am Stein.—Bad Mergentheim.—Baden-Baden.—Wildbad.—Bad Reichenhall.—Bad Elster.—Bad Brambach 294

South Africa: Report of the Hospital Survey Committee 296

Budapest: Definition of Patent Medicines 297

Ireland: The General Prisons Board 297

Medicine and the Law: Marriage of Blood Relations 298

Infectious Disease in England and Wales 316

THE SERVICES.

Royal Army Medical Corps.—Royal Air Force.—Indian Medical Service.—North Persian Forces Memorial Medal 298

OBITUARY.

Horatio Bryan Donkin, M.D., F.R.C.P.—*(With Portrait)* 299

Charles Theodore William Hirsch, M.R.C.S. 301

CORRESPONDENCE.

Food Factors in Diseases of the Teeth. (Dr. Harry Campbell) 305

Diet and Dietists (Dr. M. J. Rowlands) 305

Colour Tests for Vitamin A (Mr. Stanley G. Willimott and Mr. Frank Wokes) 305

Tetanus following Intramuscular Injection of Quinine (Dr. G. F. Darker) 306

Medical Practice in Colombia (Mr. J. Medina) 306

Pathological Laboratories and the B.M.A. (Dr. A. Knyvett Gordon) 306

Medical Science in the City of York (Dr. G. A. Auden) 307

Poor-law Hospitals 307

The Labelling of Eggs (Drs. A. G. Everard, and E. F. Thomas) 307

Contraceptive Drugs (Dr. C. E. Thornton) 308

The Certification of Lunacy 308

The Medical Directory 308

MEDICAL NEWS.

Roy. Coll. Phys. Lond. and Surg. Eng. 308

Roy. Coll. Phys. Lond. 309

Roy. Coll. Surg. Eng. 309

Roy. Coll. Surg. Edin. 309

Donations and Bequests .. 279

Dental Clinics 289

Lond. School of Hyg. and Trop. Med. 298

Hospital Sunday Fund 301

Medical Tour of French Riveria 309

University of Cambridge .. 309

Milroy Lectures 309

University of Leeds 309

Metropolitan Asylums Board 309

Lancashire Tuberculosis Hospital 309

Woman Police Doctor 309

The late Dr. J. S. Brookfield 309

PARLIAMENTARY INTELLIGENCE.

Notes on Current Topics: The Summer Adjournment 310

House of Commons: Treatment of Mental Patients in the Sudan.—Noise of Motor Traffic.—Cream and Food Preservative Regulations.—Cost of the Public Services.—Social Hygiene in Colonies.—Civil List Pensions.—Medical Men and Privilege in the Courts.—Plague Infection in the Port of London.—Medical Examinations of Prisoners.—Lunacy Act Regulations.—Surgical and Medical Treatment of Prisoners.—Population Statistics 310

NOTES, COMMENTS, AND ABSTRACTS.

Birth Control Handbills of 1823. By NORMAN E. HIMES, M.A., B.Sc. 313

Substitutes for Window Glass 316

Foaming at the Mouth 316

Appointments 312

Vacancies 313

Births, Marriages, Deaths 313

THE LONDON AND COUNTIES MEDICAL PROTECTION SOCIETY LIMITED.

(FOUNDED 1892.)

Registered Office: VICTORY HOUSE, LEICESTER SQUARE, W.C.2.

Telegrams: "MEDICAVERO, WESTRAND, LONDON." *Telephone:* REGENT 0611.

President: Sir JOHN ROSE BRADFORD, K.C.M.G., C.B., C.B.E., M.D., F.R.C.P., F.R.S.
Treasurer and Chairman of Council: C. M. FEGEN, M.R.C.S., L.R.C.P., D.P.H.
Trustees for the Reserve Fund:
Rt. Hon. LORD DAWSON, G.C.V.O., K.C.B., M.D., F.R.C.P. Sir ANTHONY A. BOWLBY, Bart., K.C.B., K.C.M.G., K.C.V.O., F.R.C.S. Sir HARRY BALDWIN, C.V.O., M.R.C.S., L.D.S.

The Society was founded for the following purposes: To protect, support and safeguard the character and interests of legally qualified Medical and Dental Practitioners; to advise and assist Members of the Society in matters affecting their professional character and interests; and to indemnify them in regard to actions, etc., undertaken on their behalf.

SUBSCRIPTIONS. There is an Entrance Fee of 10s., and an Annual Subscription of £1.

The Invested Funds of the Society exceed £38,100. The Society is fully insured to an unlimited extent against all adverse costs and damages which may be awarded against Members in any action which the Society undertakes on their behalf.

Forms of application for Membership and full particulars may be obtained from the Secretaries at the above address.

OXFORD MEDICAL PUBLICATIONS

Telegrams: OXUNIPRES, CENT LONDON.

Telephone: CITY 8960. Extension Dept. R

NEW BOOKS

JUST PUBLISHED.

36/- Net.

THE TONGUE and its Diseases
By D. C. L. FITZWILLIAMS, C.M.G., M.D., F.R.C.S., (Edin. & Eng.)
Pp. 528. 166 Illustrations. 6 Coloured Plates.

10/6 Net.

THE EAR, NOSE & THROAT in General Practice.
An informal Guide to the Main Principles.
By D. A. CROW, M.B., Ch.B. (Edin.)
Pp. 160. 2 Col. Plates. 4 Illus.

18/- Net.

A TEXT-BOOK OF **PSYCHIATRY**
For Students and Practitioners.
By D. K. HENDERSON, M.D. (Edin.), F.R.F.P.S. (Glas.) and R. D. GILLESPIE, M.D. (Glas.), D.P.M. (Lond.).
Pp. 532.

6/- Net.

DISEASES OF THE NEWBORN
A Textbook for Students and Practitioners.
By JAMES BURNET M.A., M.D., F.R.C.P. (Edin)
Pp. 286.

12/6 Net.

THERAPEUTIC MALARIA
By G. de M. RUDOLF, M.R.C.S., L.R.C.P., D.P.H., D.P.M.
Pp. 234. 2 Coloured Plates. 55 Figs.

15/- Net.

THE THOMAS SPLINT
and its modifications in the Treatment of Fractures.
By MEURICE SINCLAIR, C.M.G., M.B., Ch.B.(Edin.).
With a Foreword by Sir ROBERT JONES, K.B.E., C.B., F.R.C.S.
Pp. 182. 85 Illustrations with X-Ray Photographs. 3 Charts.

12/6 Net.

INTRACRANIAL TUMOURS,
and Some Errors in their Diagnosis.
By Sir JAMES PURVES-STEWART, K.C.M.G., C.B., M.D.(Edin.), F.R.C.P.
Pp. 220. 51 Illustrations.

30/- Net.

AN ILLUSTRATED GUIDE TO THE **SLIT-LAMP**
By T. HARRISON BUTLER, M.A., D.M. (Lond.), M.R.C.S. (Eng.), L.R.C.P. (Lond.)
Pp. 158. 5 Col. Plates. 158 Illus.

16/- Net.

A HANDBOOK OF **DISEASES OF THE STOMACH**
By STANLEY WYARD, M.D., B.S., M.R.C.P.
Pp. 397. 32 Illustrations.

8/6 Net.

CHRONIC RHEUMATIC DISEASES
Their Diagnosis and Treatment.
By F. G. THOMSON, M.A. (Cantab), M.D., F.R.C.P. (Lond.) and R. G. GORDON, M.D., D.Sc., M.R.C.P. (Edin.)
Pp. 210.

20/- Net.

HELIOTHERAPY
With Special Consideration of Surgical Tuberculosis.
By A. ROLLIER, M.D.
2nd Edition. Pp. 342. 273 Illus.

21/- Net.

DISEASES of the HEART
Their Diagnosis, Prognosis, and Treatment by Modern Methods,
By FREDERICK W. PRICE, M.D., F.R.S.(Edin.).
Pp. 550. 249 Text Figs. 32 Sphygmograms. 92 Polygraphic Tracings. 87 Electrocardiograms. New (2nd) Edition.

The Oxford University Press

HUMPHREY MILFORD

Dept. R. (L.), Falcon Sq., London, E.C.1

(And of all Booksellers.)

Oliver-Sharpey Lectures

ON THE

COÖRDINATION OF THE RESPIRATION AND CIRCULATION WITH VARIATIONS IN BODILY ACTIVITY.

Delivered before the Royal College of Physicians of London

BY C. G. DOUGLAS, C.M.G., *M.C.*, D.M. OXF., F.R.S.,
FELLOW OF ST. JOHN'S COLLEGE, OXFORD.

LECTURE II.*

Delivered May 5th, 1927.

IN my preceding lecture I discussed the various factors which ensure that the breathing shall keep pace with the requirements of the body as the metabolism varies. The respiratory exchange of the tissues cannot be adequately provided for merely by an appropriate adjustment of the breathing, for though the breathing may be responsible for efficient gaseous exchange in the lungs the transport of gases between the lungs and tissues is a function of the circulation. If a person is at rest absorbing only some 240 c.cm. of oxygen per minute, it is clear that, when allowance is made for the maintenance of the many different organs, but a fraction of this oxygen absorption can be attributed to the metabolism of muscles which are thrown into activity when we move about. Yet the bulk of the 3 to 4 litres of oxygen which may actually be absorbed per minute by a person doing hard work must be utilised in these muscles, and it would therefore seem that an oxygen-supply 30 times the resting value or even more may have to be provided to meet the demands of the muscles in such cases. Even if the blood can pick up its full charge of oxygen in the lungs the amount which can be carried in each litre of blood is barely 200 c.cm., and we know that not nearly the whole of this can be abstracted as the blood passes through the tissues. The demands made by the muscles during hard work must therefore entail a very great increase in both the local and the general circulation.

The problem of the general regulation of the circulation is a very much more difficult one to attack than the regulation of the breathing. The system to be dealt with is far more complex, and though a great deal of most valuable information has resulted from operative experiments on animals it must be acknowledged that methods of investigating functional circulatory changes in nearly intact animals and in man, which can alone give us the complete answer that we require, are still in their infancy.

In discussing the coördination of the breathing with changes in the activity of the body I pointed out that events in the organs whose activity varies must in the end set the pace of the respiratory centre. The same line of argument ought to be applicable to the regulation of the circulation. If a muscle passes from rest into activity it is in the first instance the respiratory demands of that muscle that have to be satisfied by the circulation, and somehow or other, or so it seems to me, the changes in that muscle must initiate a series of events which will finally result in such an adjustment of the whole circulatory system that the necessary increased blood-supply is attained without detriment to the rest of the body.

RELATION OF BLOOD FLOW THROUGH THE MUSCLES TO THEIR METABOLISM.

In examining this question I intend to restrict myself to changes resulting from muscular activity, and I am going to start with the proposition that the blood flow through the muscles must be practically proportional to their metabolism, no matter whether they are at rest or whether they are at work so long as the work is not too severe. Apart from experimental observations in justification of this view, which I need not discuss as they have been fully dealt with by Haldane,[1] I put it forward on general grounds. It is obvious that too small a blood flow can only mean local asphyxia, and though we might for a moment think that a blood-supply in excess of the actual demands of the moment would do no harm though it might be extravagant, we can hardly maintain this when we recall the exactness with which the hydrogen-ion concentration is regulated in the body, since excessive blood flow will mean undue abstraction of CO_2 and a disturbance of local hydrogen-ion concentration. We have an analogous case in the breathing when deliberate over-ventilation of the lungs leads to a great reduction in the hydrogen-ion concentration in the arterial blood and definite signs of abnormality.

THE LOCAL REGULATION OF THE CIRCULATION.

Our ideas on the local regulation of the circulation have been profoundly modified in recent years by the classical work of Dale and Richards,[2] and of Krogh and his colleagues,[3] on capillary tone. The observations by Krogh on the limited number of capillaries which are patent in a resting muscle, and the astounding increase in visible capillaries through which blood is swiftly flowing as tonic contraction give place to wide dilatation on the onset of muscular work, afford an objective demonstration of the great increase of local blood-supply which, as I have already pointed out, must be secured during muscular activity. Why should the capillaries open up in this way? We know now that they are certainly not merely forced open by a rise of blood pressure in the arteries which supply them; their tonic contraction must first be inhibited, and if the blood flow is to be proportional to the requirements the degree of dilatation of the capillaries must be correlated with the change in the metabolism.

A very plausible hypothesis has been developed in recent years by Dale, Richards, and Burn[4] to account for these changes in capillary calibre on the basis of their investigation of the capillary-dilator effect caused by histamine. In their view some substance of a histamine-like nature, possibly histamine itself, may be a normal metabolic product and antagonise the constrictor effect on the capillaries which is known to be exerted by adrenalin and perhaps by pituitrin, for Krogh has shown that the normal tone of at least some of the capillaries in the body can only be maintained so long as the latter substance is present in the blood. This hypothesis is an attractive one, and affords a perfectly logical explanation of the functional alterations of capillary calibre, for it suggests that the continuous secretion of the suprarenal and pituitary glands tends to keep the capillaries constricted, and that this tendency may be overbalanced by the local production of a definite dilator substance whose amount will vary with the metabolism, a balance being struck with the capillaries dilated to a degree depending on the activity at the time. More recent researches in Dale's laboratory [5] on the presence of histamine and choline in extracts of the organs strengthen this position.

Relation of Capillary Tone in Muscles to CO_2 and O_2 Pressure.

And yet, attractive though the theory is, I am not convinced that we have got to the bottom of the story. Haldane and I, in an investigation of the regulation of the output of blood by the heart, to which I shall refer presently, thought that we had enough evidence to justify the view that the local circulation in the muscles must be dependent on both the CO_2 pressure (probably more correctly the hydrogen-ion concentration) and oxygen pressure existing at the time in the tissue, the rate of blood flow being in fact so regulated that the oxygen pressure and hydrogen-ion concentration will only

* Lecture I. appeared in THE LANCET last week.

vary to a trifling degree with increase of the metabolism unless the muscular activity is excessive. We held that capillary tone must be influenced as the metabolism varies by slight changes occurring simultaneously in the local hydrogen-ion concentration and oxygen pressure, a dilatation being provoked if the hydrogen-ion concentration begins to increase while the oxygen pressure begins to fall; it also appeared to us that the effect of moderate increase of hydrogen-ion concentration could be counteracted by a rise in the oxygen pressure and vice versa.† A muscle in maintaining steady activity for long periods must be absolutely dependent from moment to moment on the blood stream which passes through it for the requisite supply of oxygen and the efficient removal of CO_2, and this in itself might well arouse the suspicion that local circulation is in some way dependent on local gas concentrations. This view is, however, not necessarily incompatible with Dale's hypothesis, for it is conceivable that the extent to which some dilator substance can be formed in tissue metabolism may be itself dependent on the precise hydrogen-ion concentration and oxygen pressure in the tissue; the two latter factors will then be the prime cause of capillary regulation, the dilator substance the intermediary, through which they become effective. Finality has not yet been reached in our views, but I am convinced that we have substantial grounds for asserting that the calibre of the capillaries is directly influenced by chemical or physicochemical changes which result from alterations of the metabolism of the tissue in which they are situated.

Metabolism in Relation to Changes in Calibre of Arterioles.

Changes in the calibre of the capillaries would in themselves, however, be insufficient to satisfy the requirements imposed by variations of tissue activity unless accompanied by appropriate changes in arterial calibre. How precisely this is brought about is still a matter for debate. Krogh's work certainly inclines one to believe that there may be backward propagation of dilatation from the capillaries to the immediately adjacent arterioles via nerve channels, a local axon reflex being concerned rather than a true reflex. What adds to the uncertainty in the case of the arterioles is the fact that, as Krogh and Dale's observations show, the smallest arterioles may show a response to chemical stimuli resembling that of the capillaries rather than the larger arteries; it would appear, indeed, that the functional transition from arterioles to capillaries is gradual rather than sudden. It is also far from clear whether a similar backward propagation through nerve channels can explain, at least in part, the dilatation of the larger arterial branches which supply the terminal arterioles; it is, perhaps, more likely that inhibition of normal constrictor impulses to the larger vessels with resulting dilatation is part of the response in a reflex of the Lovén type to which I shall refer presently.

If arterioles as well as capillaries dilate locally in response to an increase in the metabolism of the part that they supply, the result must be a greater blood flow through the tissue. Blood will be transferred more rapidly from the arterial to the venous side of the active muscle, though this may for the moment mean some fall in arterial pressure unless this is compensated by other means, and the varying pressure exerted by the muscular contractions on the veins will assist to forward this increased flow of blood towards the heart.

Compensatory Constriction of Blood-vessels.

There is, however, a further general vascular reaction of great importance which must be taken into account. If the arterioles and capillaries dilate in, say, the great mass of muscles in the legs, they can only be adequately filled with blood if at the same time there is compensatory constriction of blood-vessels in the inactive parts of the body, for the total volume of blood in the circulatory system will not vary. That such a compensatory constriction does occur is undoubted, and the visceral area of blood-vessels in the abdomen offers the most favourable field for this compensation. Krogh [6] has discussed in detail the possible influence of vasoconstriction in this area, and has shown that diminution of calibre of the arteries supplying the intestinal tract and liver will be followed by the expulsion of part of the reserve of blood held in the portal system vessels into the vena cava, a result which will, of course, be much enhanced if the portal vessels themselves undergo active contraction, and for this there is some evidence. Such an expulsion of blood into the vena cava coupled with the increased blood flow forced up from the active muscle will result in a great acceleration of the venous return to the heart, and this will be further favoured by the increased respiratory movements as hyperpnœa begins. No doubt other systems of blood-vessels besides those in the portal area take part in the compensatory constriction, perhaps even those in the skin in the early stages of muscular work, though, as we know by experience, circulatory conditions in the skin are subservient at a later stage, at least, to the requirements of temperature regulation. Barcroft [7] has recently drawn attention to the function of the spleen as a reservoir from which blood may be withdrawn during muscular work, while Pembrey and his colleagues,[8] in their observations on the behaviour of the kidney, appear to establish the fact that even when rapid diuresis has been provoked a reduction in the activity of the organ associated with vasoconstriction ensues during the performance of hard muscular work—under the stress the less important demand has to give way before the more important.

Factors Involved in Vasoconstriction.

A widespread vasoconstriction must presumably be spread through the vasoconstrictor nerves, and in initiating these impulses two factors would appear to come into play. In the first place, we know from the old experiments of Lovén that stimulation of an afferent sensory nerve causes general reflex vasoconstriction accompanied by vasodilatation in the part of the body supplied by that nerve, and this suggests that with the onset of muscular work a similar reflex excitation of the vasoconstrictor centre may perhaps be evoked by afferent proprioceptive impulses from the muscles themselves. Possibly compensatory constriction in the important portal area may be but a particular instance of a generalised reflex of the Lovén type. In the second place, increase of hydrogen-ion concentration or fall in oxygen pressure in the blood reaching the brain, the former of which at least must occur during muscular work, directly stimulates vasoconstriction in certain areas of the body. The second factor may well not come into action so promptly as the first, but it should help to support the reflex effect.

DETERMINATION OF THE OUTPUT OF THE HEART.

The heart cannot put out more blood than it receives, nor can it fail to keep pace with the venous return without the risks associated with back pressure and venous stagnation; in short, the output of the heart must be governed by the venous return. If the rate at which venous blood is returning to the heart is greatly accelerated with the onset of muscular work, how will the heart deal with the task that is set before it? Two methods are open to it: the pulse-rate may increase, a greater volume of blood may be expelled at each beat of the heart. That the former of these two possible methods does actually come into play is a matter of common experience, but it was not until 1915 that Bainbridge [10] was able to prove that the increased distension of the right auricle, and possibly of the adjacent region of the

† This view has quite recently received support from observations by Tinel (Comptes Rendus de la Soc. de Biol., 1927, xcvi., 665) on the diminution of calibre of the cerebral arteries when oxygen is inhaled or the breathing wilfully exaggerated as opposed to the dilatation resulting from rebreathing air, facts which he regards as indicative of self-regulation of the cerebral circulation.

great veins, resulting from rise of venous pressure and increased venous return to the heart caused reflex diminution of the normal inhibitory action of the vagus and to some degree an accentuation of accelerator impulses to the heart by way of the sympathetic nerves, a result which has since been confirmed by Sassa and Miyazaki,[11] and by Anrep and Segall.[12] The observations by Patterson and Starling [13] on the isolated heart-lung preparation have definitely shown that in the absence of the normal nerve-supply the heart can cope with an increased venous return by greater diastolic filling and an increase in the amount of blood expelled at each beat, but these experiments do not tell us to what degree the heart does actually behave in this way in the intact animal.

We can readily observe in man the increase of pulse-rate associated with exercise, but it does not follow that this will necessarily be accompanied by an increased amplitude of beat, for what will actually happen will presumably depend on the extent to which the Bainbridge reflex is developed in relation to the increased venous return, since acceleration of the heart beat without alteration of amplitude of beat may suffice for the requirements. Clearly the actual state of affairs cannot be foretold; it must be verified by observation during life in the intact organism, and it is this point, the precise way in which the heart deals with the increased venous return resulting from exercise, that has excited a good deal of attention in recent years.

Krogh and Lindhard's observations by their nitrous oxide method [14] showed that the output of blood per minute from the heart was comparatively small whilst the subject was at rest, values of 3 to 5 litres being given in their original series of experiments, though slightly higher figures have been recorded in some of Lindhard's subsequent work.[15] During muscular work they found a remarkable increase of the output of blood from the heart; thus in one of Krogh and Lindhard's experiments the output rose from 3 litres per minute during rest to 17·6 litres when work was done involving an oxygen consumption of 1570 c.cm. per minute, and in another experiment of Lindhard's an output of no less than 35 litres per minute was recorded when the oxygen consumption was 3200 c.cm. per minute. So enormous a variation in the output of the heart could only be met by a great increase both in pulse-rate and in amplitude of beat, and this conclusion brought Krogh into opposition with Yandell Henderson,[16] who had been led by a study of plethysmographic records of the heart in animals to maintain that provided the venous supply is ample variation of the output of the heart is dependent only on alterations in the pulse-rate.

Miss Christiansen, Haldane, and I [17] introduced an entirely different method from that employed by Krogh and Lindhard for determining the output of the heart in man. We found by this method at the outset that the output of blood from the heart in several normal resting persons was of the order of 7 litres per minute, with a correspondingly large output per beat, a value considerably higher than previous estimates. In developing the method further, Haldane and I [18] made a number of careful observations on myself during conditions varying from complete rest to moderately hard work. These showed that starting with an output of blood from the heart of about 7·5 litres per minute during rest the output varied roughly in proportion with the pulse-rate as the metabolism rose up to a value represented by the absorption of about 2 litres of oxygen per minute; the output of the heart per minute had increased to 2·5 times the resting value, while the rate of oxygen consumption had risen to 8·5 times the resting value, and 64 per cent. of the oxygen available in the arterial blood had disappeared by the time the venous blood entered the lungs instead of 19 per cent., the value found during rest. Beyond this point we were unable to apply our method. There was no increase in the amplitude of the heart beat, the increased circulation rate being attributable merely to the rise in pulse-rate. On the other hand, we did obtain evidence, though it was less reliable, that in two subjects increase of metabolism was associated not only with a rise in pulse-rate but also with an increased amplitude of beat.

It seemed to us that there was a fallacy underlying the nitrous oxide method which was very difficult to avoid, and that though Krogh and Lindhard's observations might be right in general sense, their actual figures could not be accepted with complete confidence. So far as our own observations went an increase in the venous return to the heart might be dealt with either by an increase in the pulse-rate alone, as it was in my case, or by a combination of this with increased amplitude of beat. This difference in behaviour may perhaps depend on individual peculiarities; it may even be shown by the same individual at different times according to the circumstances of the moment, for we know that nervousness or mental excitement can cause a marked acceleration of the pulse-rate even in the resting person, and, unless there is at the same time a material alteration in the metabolism, it is difficult to believe that this is accompanied by any significant change in the output of the heart, and a diminution of the amplitude of beat in association with the increased pulse-rate seems a more reasonable assumption.

Had it been possible to apply our method for the measurement of the output of the heart during the performance of still heavier work, it is quite possible that I, too, might have shown a greater systolic discharge per beat. In extremely heavy work the output of the heart must be very greatly increased. A. V. Hill, Long, and Lupton have shown that an actual absorption of oxygen of 4 litres per minute can be attained by an athlete when breathing air, and of more than 5 litres a minute when breathing oxygen, and by a simple calculation they prove [19] that an output from the heart of not less than 30 to 40 litres per minute would be essential to convey this oxygen to the tissues which use it. With a pulse-rate of 180 per minute this would involve a systolic discharge of the order of 200 c.cm. per beat, a figure which is considerably in excess of the highest values hitherto recorded for rest. These figures for the output of the heart during severe work may seem enormous, but there is no escape from this conclusion, and it is not surprising that the aorta which has on occasions to transmit so large a volume has an internal diameter of an inch at its origin.

More recently a new method of determining the output of the heart has been suggested by Yandell Henderson and Haggard. This method depends, as does the nitrous oxide method, on the determination of the rate at which a gas which does not combine with any of the constituents of the blood is carried away in solution in the blood when a certain definite concentration of the gas in question is maintained in the alveolar air in the lungs. By the choice of ethyl iodide for this purpose it has been possible to avoid the fallacy which appears to underlie the nitrous oxide method, and one great advantage has been gained—namely, that of simplicity. During rest Henderson and Haggard find a comparatively large output from the heart per minute, just as Miss Christiansen, Haldane, and I did; indeed their figures are, on the whole, distinctly higher than ours, but they differ from Haldane and myself in their conclusions as to the results of muscular work of moderate severity. The contrast is clearly shown in Table I., where I have arranged the different experiments in the order of the recorded oxygen consumptions per minute.

It will be seen that the output of the heart increases in our experiments fairly gradually until a value of 18·7 litres per minute is reached, when the oxygen consumption has mounted to about 2 litres per minute. On the other hand, Henderson and Haggard's results show a surprisingly high figure for the output of the heart with but a moderate increase in the metabolism. Indeed, when the oxygen consumption per minute rises to about 2000 c.cm., the output of

the heart appears from their records to attain a value of 25 to 30 litres per minute, and yet in the last case shown in the table the extremely high oxygen consumption of 4600 c.cm. per minute demands no further increase in the output of the heart. The subjects marked with an asterisk in the table were all highly-trained athletes, who either rowed or played football

TABLE I.

Subject.	Douglas and Haldane.		Henderson and Haggard.	
	O_2 consumption c.cm. per minute.	Output of heart per minute in litres.	O_2 consumption c.cm. per minute.	Output of heart per minute in litres.
C. G. D. ..	630	8·8	—	—
E. F. A. ..	839	11·7	—	—
C. G. D. ..	891	10·9	—	—
*B. M. S. ..	—	—	1200	18·0
E. F. A. ..	1348	14·4	—	—
C. G. D. ..	1390	13·8	—	—
*M. C. H. ..	—	—	1495	21·9
G. H. H. ..	—	—	1503	17·0
Y. H. ..	—	—	1551	21·3
G. L. P. ..	1653	15·5	—	—
Y. H. ..	—	—	1680	22·3
Y. H. ..	—	—	1770	22·1
H. W. H. ..	—	—	1776	25·8
*F. A. G. ..	—	—	1782	28·5
H. W. H. ..	—	—	1860	24·8
C. G. D. ..	1974	18·7	—	—
*A. N. W. ..	—	—	2000	26·2
Y. H. ..	—	—	2258	32·6
Y. H. ..	—	—	2385	31·5
*H. T. K. ..	—	—	4600	30·3

Values obtained during rest for most of these subjects will be found in Table II.

* Trained athletes.

for Yale University. From some other observations made by Henderson and Haggard [21] we learn that B. M. S., who, as shown above, had an output of the heart of 18 litres per minute when doing work on the bicycle ergometer demanding an oxygen consumption of only 1200 c.cm. per minute, was capable of maintaining a rate of oxygen consumption of more than 3·5 litres per minute when working for several minutes on the rowing machine, while A. N. W., who could attain a similar figure on the rowing machine, had an output of blood from the heart of no less than 26·2 litres per minute when consuming 2000 c.cm. of oxygen per minute on the bicycle ergometer.

It is not easy to believe that when work is done of so moderate a character as that represented by an oxygen consumption of 2 litres per minute the output of the heart is really increased, as the figures seem to show, to a value which cannot be very far from the maximum of which the organ is capable; if the figures are true it would appear that little further accommodation is possible by alteration in the output of the heart to account for the high oxygen consumptions of 3 to 4 litres per minute, which we know can be kept up by athletes for considerable periods during strenuous exertion. We should have to face, too, another difficulty, for the extra oxygen would have to be obtained mainly by abstracting more oxygen from each unit of blood as it passes through the muscles, and this would be accompanied by a proportional and, as will be obvious, a very serious rise in local CO_2 pressure. I have already pointed out that there are objections to the idea that the local hydrogen-ion concentration can be considerably varied with impunity. The venous blood which enters the lungs from the right side of the heart has, it is true, a much larger oxygen deficit and CO_2 content during work than it has during rest, but this in itself is no indication that the variation represents a similar change in the gas-content of the blood traversing the muscles. The venous blood entering the lungs is a mixture of blood from different parts of the body, some more venous in character and some less. So far as can be judged from the available evidence, the blood returning from the muscles has a very low oxygen and high CO_2 content even during rest, and Haldane and I thought that the facts could be more reasonably explained by the assumption that no great change occurs during work in the gas-content of the blood leaving the active muscles, but that this highly venous blood returning in greatly increased quantity to the right side of the heart now forms a far higher proportion of the mixed venous blood entering the lungs than it did during rest.

The validity of Henderson and Haggard's method depends on the assumption that ethyl iodide after solution in the blood stream in the lungs is decomposed so completely in its passage through the tissues that practically none returns to the lungs, and their experimental evidence seemed to warrant this assumption. Yet Moore, Hamilton, and Kinsman,[22] as well as Starr and Gamble [23] assert that ethyl iodide is not fully decomposed in this way, but that material amounts are to be found in the venous blood. If this is so, and the point ought not to be difficult to settle definitely, the method as practised at present must prove fallacious.

In any case there is, I think, another serious criticism which can be brought against Henderson and Haggard. An essential feature in their method is an estimation of the mean concentration of ethyl iodide in the alveolar air, and the sample of alveolar air which they use for this purpose is obtained by collecting the last few c.cm. of air expired in a number of consecutive normal breaths. I pointed out in my preceding lecture that Krogh and Lindhard urged some years ago that if alveolar samples are collected by the Haldane-Priestley method the CO_2 concentrations found will be unduly high owing to the time occupied in giving the forced expirations required in this method. The discrepancy may be immaterial during rest, but it will become significant during hard muscular work when the rate of blood flow through the lungs and the amount of CO_2 expelled into the alveolar air are greatly increased. It seems to me that this criticism must apply even with greater force to a method in which the alveolar samples are taken only at the extreme end of the expirations, and if so, it will mean that the ethyl iodide concentrations found in the alveolar air will not represent the true mean concentration, but some value definitely below this. The estimate of the blood flow through the lungs and of the output of the heart will therefore be too high. Provided that the subject is sitting quiet and that the depth of respiration is not too shallow, I am quite prepared to believe that the samples taken as Henderson and Haggard have done may agree closely with those obtained by the Haldane-Priestley method, but I cannot help feeling that during muscular work of not too great severity the average of two Haldane-Priestley samples given correctly at the end of inspiration and of expiration will give a value which, though somewhat higher in CO_2 or lower in ethyl iodide than the true mean in the alveolar air, will be more nearly correct than that obtained by Henderson and Haggard. This error may help to explain the fact that Henderson and Haggard have found much higher figures for the output of blood from the heart during moderate muscular work than Haldane and I did. Perhaps we might even trace to the same cause the curious fact shown by the ethyl iodide method that the output of the heart is, as will be seen from the figures in Table II., apparently greater when lying down than when sitting or standing still. Haldane and I certainly saw no indication of this in my own case. It may be that if the breathing slows down and deepens when lying down, as is often the case, the Henderson-Haggard samples taken at the end of expiration only may again give values differing to a material extent from the true mean. I admit that the method devised by Miss Christiansen, Haldane, and myself is not free from error, but it seems to me when I review the other methods which are available at the moment that it ought, on the whole, to afford results which most closely approach the truth. We, too, have to face the criticism that the alveolar samples on which we depend for our estimate of the CO_2

concentration in the arterial blood, which forms an essential point in the argument, are somewhat too high during work, but so far as I can judge the discrepancy during moderate work is probably not very great, though it will tend to make our calculated values for the output of the heart a little too great as the work gets harder.

There may be controversy as to the relative parts played by variations of pulse-rate and amplitude of

TABLE II.

Subject.	Output of heart per minute in litres.		
	Lying down.	Sitting.	Standing still.
Douglas and Haldane.			
C. G. D.	7·5	8·0	—
Henderson and Haggard.			
A. N. W.	9·1	—	6·8
H. T. K.	14·3	—	9·8
B. M. S.	10·6	—	7·0
F. A. G.	10·7	10·0	—
M. C. H.	10·1	7·6	—
A. V. B.	9·5	9·2	5·6
G. H. H.	7·6	7·0	—
Y. H.	9·5	8·3	9·7

beat in the normal response of the heart during exercise, but there is no difference of opinion as to the ability of the heart to deal effectively with a great increase in the amount of blood which may reach it through the veins and pump it on into the arteries.

Arterial Blood Pressure during Muscular Work.

When once the heart has begun to force on into the arterial system the increased quantity of venous blood that reaches it through the veins, the general circulation-rate will be increased and the supply of blood to the active muscles with their dilated vessels will be ensured. The arterial blood pressure is determined at any moment by the output of the heart and the prevailing arterial resistance. During muscular work the blood-vessels are dilated in the active muscles and compensatory constriction of vessels in the inactive parts of the body reduces the total volume of blood retained in these places and so allows for the proper filling of the dilated vessels. Actually the arterial blood pressure rises considerably during muscular work as is well known, and Dr. W. D. Paterson and I, in following in ourselves the changes of blood pressure which take place on passing from rest into activity, have found that a systolic blood pressure of 200 mm. of mercury can be quickly reached when doing work of moderate severity. The increase of arterial blood pressure will no doubt help to maintain the requisite flow of blood through the organs in which compensatory constriction of blood-vessels has occurred. In spite of this, however, it does seem from the observations of Haldane and myself, as well as those of Pembrey, that during muscular activity the rate of blood flow through the relatively inactive parts of the body is actually diminished. This fact need not, however, conflict with the postulate that the blood flow must be approximately proportional to the metabolism, for it is quite likely that the metabolism of the parts affected—alimentary canal, glands, &c.—may also be diminished for the time being.

Full accommodation of the circulation, and of the respiration too, to meet the requirements of muscular exercise is by no means instantaneous. It takes time, though not very long, for a balance to be struck even if the work done is but moderate, and stimulation of the nervous centres involved in the adjustment which may be attributed to psychic effects connected with the transition from rest to work appears sometimes to accelerate the early stages. When once the adjustment is established, however, it will persist so long as the muscular work remains steady. When the work stops we may anticipate a reverse series of changes to that which occurs on the commencement of exercise. With the reduction in the metabolism the capillaries in the muscles will diminish in calibre, the previous compensatory constriction of blood-vessels elsewhere in the body will give place to dilatation, the venous return to the heart will be slowed down, and with the diminution of the stimulation responsible for the Bainbridge reflex the pulse-rate will decrease, the output of the heart will become smaller, and the arterial blood pressure will fall. Observations by Lindhard [24] and by Lythgoe and Pereira [25] point to a rapid diminution of the general circulation-rate when muscular exercise stops. It is possible that as the stimulus which evoked the accelerator reflex diminishes in the earlier stages of rest, the antagonistic depressor reflex which depends on the passage of afferent impulses up to the branches of the vagus connected with the left ventricle and aorta [26] may come into play and help to hasten the return of the pulse-rate and arterial blood pressure to normal values.

As in the case of the regulation of the breathing coördination of the circulation with increase in muscular activity seems to be attained by the coöperation of chemical and nervous factors. In the chemical changes resulting directly from alteration in the metabolism and in reflexes, whether peripheral or central, initiated by stimuli originating in the active muscles we can, I believe, find the cause not only of local vascular dilatation but also of compensatory vasoconstriction. The heart responds automatically to the resultant increased venous return owing to the accelerator reflex to which it is subject and to its own potential capacity for increasing its amplitude of beat. The correct adjustment of the whole circulation is, in fact, set by those peripheral organs whose activity happens to change, but in obtaining their own appropriate supply of blood the rest of the body does not suffer.

This sketch which I have attempted to draw of the factors concerned in the regulation of the circulation is but rough and incomplete. Far more information must, I fear, be obtained before we can hope to appreciate in full the delicacy and subtlety of adjustment of blood flow to meet the ever-changing variations in activity of the muscles, organs, and glands, indeed of every part of the body, which occur in normal everyday life, but until we can do this we cannot claim to understand properly the circulation of the blood.

REFERENCES.

1. Haldane, J. S.: Respiration, Yale University Press, 1922.
2. Dale, H. H., and Richards, A. N.: Jour. Phys., 1918, lii., 110.
3. Krogh, A.: Anatomy and Physiology of the Capillaries, Yale University Press, 1922.
4. Burn, J. H., and Dale: Jour. Phys., 1926, lxi., 185.
5. Best, C. H., Dale, Dudley, H. W., and Thorpe, W. V.: Jour. Phys., 1927, lxii., 397.
6. Krogh: Skand. Archiv f. Phys., 1912, xxvii., 227.
7. Barcroft, J.: THE LANCET, 1925, i., 319.
8. MacKeith, N. W., Pembrey, M. S., Spurrell, W. R., Warner, E. C., and Westlake, H. J. W. J.: Proc. Roy. Soc., 1924, vol. B xcv., 413.
9. Lovén, C.: Ber. d. k. Sächs. Ges. d. Wissensch., 1866, xviii., 85.
10. Bainbridge, F. A.: Jour. Phys., 1915, l., 65.
11. Sassa, K., and Miyazaki, H.: Ibid., 1920, liv., 203.
12. Anrep, G. V., and Segall, H. N.: Ibid., 1926, lxi., 215.
13. Patterson, S. W., and Starling, E. H.: Ibid., 1914, xlviii., 357.
14. Krogh and Lindhard, J.: Skand. Archiv f. Phys., 1912, xxvii., 100.
15. Lindhard: Pflüger's Archiv, 1915, clxi., 233.
16. Henderson, Y.: Amer. Jour. Phys., 1909, xxiii., 345.
17. Christiansen, J., Douglas, C. G., and Haldane: Jour. Phys., 1914, xlviii., 244.
18. Douglas and Haldane: Ibid., 1922, lvi., 69.
19. Hill, A. V., Long, C. N. H., and Lupton, H.: Proc. Roy. Soc., 1925, vol. B xcvii., 164.
20. Henderson and Haggard, H. W.: Amer. Jour. Phys., 1925, lxxiii., 193.
21. Henderson and Haggard: Ibid., 1925, lxxii., 264.
22. Moore, J. W., Hamilton, W. F., and Kinsman, J. M.: Jour. Amer. Med. Assoc., 1926, lxxxvii., 817.
23. Starr, I., and Gamble, C. J.: Jour. Biol. Chem., 1927, lxxi., 509.
24. Lindhard: Jour. Phys., 1923, lvii., 17.
25. Lythgoe, R. J., and Pereira, J. R.: Proc. Roy. Soc., 1925, vol. B xcviii., 469.
26. Daly I. de Burgh, and Verney, E. B.: Jour. Phys., 1927, lxii., 330.

THE PREPARATION OF PATIENTS FOR OPERATION.

BY W. E. M. MITCHELL, *M.C.*, M.B., B.S. LOND., F.R.C.S. ENG.,
CHIEF ASSISTANT TO A SURGICAL UNIT, ST. BARTHOLOMEW'S HOSPITAL.

WITH the passage of time and the accumulation of experience the methods adopted in preparing patients for the ordeal of a surgical operation have undergone radical alteration. Advances in surgical technique and greater accuracy of diagnosis have gone hand in hand with a crystallisation of ideas on the most satisfactory preoperative preparation of the patient.

Objections to the Use of Castor Oil.

Formerly purgation and starvation, both as complete as possible, were the order of the day, the paramount consideration in the mind of the surgeon being the emptiness of the whole alimentary tract. The usual purgative was castor oil in full dose, and this drug succeeded in irritating the intestine to such an extent that the bowels acted frequently and forcibly. Oil was given the night before the day of operation, and the patient's rest and sleep were disturbed by numerous and insistent calls to stool.

The mode of action of castor oil in the intestine is well known. It acts as a purgative in virtue of its transformation in the duodenum into ricinoleic acid. This substance is a strong intestinal irritant and very effectively stimulates peristalsis in the gut as it passes through it. The object aimed at in giving the drug—namely, the complete evacuation of the bowel—is attained with more certainty with castor oil than with any other of the common purgatives; but the advantages and disadvantages of such treatment demand careful consideration. The advantages of drastic purging of the intestinal tract are few in number, and are confined to cases where it is desirable to empty the colon completely and to avoid a movement of the bowels for as long as possible. Such cases are those requiring operation on the anus and anal canal, and especially those for the cure of hæmorrhoids. In these special circumstances castor oil empties the intestine admirably, and the constipation, which is its well-known sequel, effectively guards against bowel movement for several days.

The first disadvantage of castor oil in the preparation of a patient for operation is its strongly irritant nature. The ricinoleic acid stings the intestinal mucosa and musculature so venomously that the gut is irritated, reddened, swollen, and exhausted by the insult. The intestine is empty and collapsed after such treatment, but it is not in the best condition to withstand the mechanical interference of the surgeon. Such irritation leaves it in a condition most unsuitable for intestinal surgery.

The second disadvantage is the most serious; it is the inertia of the intestinal musculature which follows the irritation and overaction caused by the oil. This inertia is, I believe, one of the most fruitful sources of ileus after abdominal operations. The simplest laparotomy, however clean the incision and however gentle the manipulations, must result in some disturbance of the normal peristalsis in the intestine. Two factors are concerned in producing this disturbance; one, the mechanical interference with the gut itself by handling, incising, suturing, "packing-off," &c.; the other, the immobility of the abdominal wall which follows the closing of the incision. This immobility is a result of nature's protective reflex, which keeps all the muscles on guard against the smallest movement, and also of the firm bandaging of the whole abdomen. If to these two factors tending to inhibit normal peristalsis and avoidable in any laparotomy be added the intestinal inertia consequent on the administration of castor oil, then the risk of abdominal distension after the operation is very materially increased. It will be conceded generally that tympanites is probably the most frequent cause of discomfort after laparotomy, and while it is usually transient and may give rise to but little discomfort, yet it sometimes jeopardises the patient's chances of recovery. Any method of avoiding this common and distressing postoperative complication is greatly to be desired, and the first step towards such a method is the avoidance of the severe intestinal irritation produced by castor oil.

The last disadvantage of castor oil—and this is especially great if it be given the night before operation—is its interference with the patient's rest. The ensuring of sleep and rest as undisturbed as possible is recognised to be one of the best prophylactics against shock. Where is the surgeon who has not remarked the great power of resistance to shock displayed by the phlegmatic type of patient who is less excited about his operation than the surgeon who performs it? Such a subject will come through his ordeal with little lowering of his blood pressure, compared with that which might occur in a nervous patient in the same circumstances. It is surely a matter of common observation that the reserve of "vital force" is built up by refreshing sleep better than by any other single agency. I submit that the disturbance of sleep incidental to the use of large doses of castor oil on the night before operation is a menace to the patient's powers of resistance and ought to be avoided.

Not content with the violent purgation procured with this drug, many surgeons demand further that their patients be given an enema on the operation morning. The object of this, apparently, is to empty the large intestine, and to avoid the possibility of the castor oil continuing to force the bowels to act right up to the hour of operation, and perhaps on the operating table. To some patients the giving of an enema is in itself a weakening measure, and it is at least advisable to avoid anything which may even tend to deplete a patient's strength on the morning of the operation day. It must have been the experience of some that a nurse has wakened a patient from sleep in the very early hours of the morning to administer an enema, and that to one who has been disturbed most of the night, and sadly needs any sleep that may be secured in the intervals of colonic cramps. Surely the night preceding operation can be relieved of such terrors as these.

It may be said in extenuation of the castor oil purge that for intestinal anastomosis it is necessary to have the bowel empty, and therefore that castor oil supplies an important need. In answer to such a statement I would say that:—

(*a*) Emptiness of the gut is not a necessary condition for satisfactory intestinal anastomosis; the resources of surgery are surely sufficient to guard against the escape of intestinal contents when a part of the bowel is incised.

(*b*) The collapsed and contracted state of the bowel makes anastomosis more difficult than it need be, and end-to-end anastomosis may be made very difficult by such a state of the intestine.

(*c*) The anastomosis of loops of bowel irritated and contracted, besides being difficult at the time, is more liable to be followed by stenosis of the aperture than would such anastomosis in normal bowel.

(*d*) The inertia of the gut following the hyperactivity caused by the oil is a menace to the functioning of the stoma.

The disadvantages of such purgation in intra-abdominal operations have no counterbalancing advantages, and this preparative treatment is now very generally supplanted by one more humane and enlightened.

Objection to Preoperative Starvation.

With reference to starvation before abdominal operations, that too is becoming a relic of the past—at any rate in the degree to which it was formerly practised. The withholding of food for 12 to 18 hours, and the giving of nothing but water, was a rigorous régime and one which now has little to be said in its favour. The old idea of admitting no

solids into the alimentary tract within half a day of the operation, and the removal of all intestinal contents already there, apparently was designed not only to produce the best possible condition of the patient and his viscera for surgical interference, but also to guard against postoperative distension. In this latter object it usually failed as signally as it did in the former, chiefly, as has been said above, on account of the constipating effect of castor oil; but also because of the absence of the normal stimulus to peristalsis—namely, the intestinal contents.

The strongest argument against the preoperative starvation of a patient is the fact that such withholding of food predisposes to acidosis, or the lowering of the alkali reserve in the blood. This sequel is the more liable to follow in children, particularly in those cases where a septic process is at work, and when chloroform or ether, but especially the former, is used as the anæsthetic. It is said that even the mild attacks of vomiting that occur after most laparotomies are due to a slight degree of acidosis. It is my belief that this vomiting is accentuated, not relieved, by preliminary starvation for too long a time.

Modern Preoperative Methods.

Having criticised the older methods of preparation, I wish now to outline the means that are being adopted more and more in the routine preparation of patients for laparotomy, and to refer incidentally to a few of the special methods required in some special cases.

The examination of the cardiovascular system, the lungs, the nervous system, the urine, and the estimation of the efficiency of the renal function, can hardly be termed preparation for operation. They are to be regarded more properly as part of the routine examination from whose data, together with the record of his history, the diagnosis of the patient's complaint has been made. For this reason it has been assumed here that these investigations have been carried out in the complete examination of the patient before operation is contemplated.

Preoperative measures may vary somewhat to meet the needs of certain special organs, such as the liver or kidney, when these are diseased, or to alleviate certain troubles due to obstruction in the alimentary tract. For the majority of abdominal operations, however, and for all operations on other parts of the body, when general anæsthesia is used, the following scheme of preparation is advocated.

1. The removal of any sources of focal infection—e.g., septic teeth, tonsils, &c.
2. The ensuring of a free daily evacuation of the bowels by an adequate dose of paraffinum liq. night and morning.
3. A course of tonic treatment with fresh air, exercise as far as possible, and suitable food. These three desiderata may have been achieved in some cases by treatment undergone before the operation in view was recommended; in other cases a period of one week is usually sufficient to allow these procedures to be carried out.
4. Admission to the nursing home or hospital ought to be not later than 6 P.M. on the day before operation.
5. The patient then has a warm bath and goes to bed.
6. The anæsthetist and the surgeon visit the patient in his room, and sees that the nurse understands the technique of preparation for the operation next morning.
7. The patient's supper consists of a light meal such as soup, boiled fish or chicken, with plain sauce, spinach, butter, toast and plain biscuit, jelly. No potatoes, fresh bread, cheese, strong tea, or coffee. Unrestricted fluids to drink. Alcohol only if specially ordered by surgeon.
8. The skin of the whole anterior abdominal wall and groins to be shaved, washed with ether, and covered with a sterile towel.
9. Later in the evening when the patient is feeling sleepy he is given a hot drink of ovaltine, or Horlick's malted milk.
10. A mild laxative such as that to which the patient is most accustomed—e.g., paraffinum liq., senna, liquorice—is administered in the dose which he knows to be effective under normal circumstances.
11. Teeth are scrubbed thoroughly with a new tooth-brush and an antiseptic tooth-paste—e.g., euthymol.
12. Lights out 10.30 P.M. or at discretion of nurse.
13. Night nurse ensures a good night's rest. Gives hot drinks, &c., but after 2 A.M. only water or sweetened lemonade.
14. Sleep on no account to be disturbed till 7 o'clock next morning.
15. Patient is given a glass of hot water to drink on waking.
16. Teeth are scrubbed as before. Toilet completed, (including shave).
17. Enema is administered only if no result from laxative by 7.30 A.M.
18. 8.30 A.M., hypodermic injection, atropine gr. 1/100, morphine gr. 1/6.
19. Bladder emptied. If not, note is sent with patient to theatre with time of last micturition indicated.
20. Operation 9 A.M.

It will be seen that the above scheme aims at presenting the patient to the surgeon on the operating table with his mind well rested by refreshing sleep, and his nervous energy conserved by the absence of excitement and long suspense before the early morning operation. His tissues are not desiccated by excessive excretion of fluids, the result of perspiration, increased frequency of micturition, and even diarrhœa which often follow nervous excitement. The patient comes to operation with his tissues adequately supplied with water, his food reserves in their usual state, his metabolism adjusted as perfectly as may be, and his intestines working normally—in short, in such a condition of fitness that the shock of operation may affect him as little as possible.

Risks of Focal Sepsis.

The attention to septic foci in the mouth and nose cannot be too meticulous, and it is nothing less than a surgical crime to perform an operation (other than an emergency one) with general anæsthesia in the presence of frank oral or nasal sepsis. This is said on account of the risk of pneumonia supervening in such cases. When dealing with what Mr. A. J. Walton has named the "surgical dyspepsias," the medical attendant doubtless will have eliminated any focus of infection that he may have been able to discover; on the other hand, he may not have thought it worth while to treat dental sepsis in a patient awaiting such an operation as that for the radical cure of hernia. It is, however, to be insisted on that the risk from the anæsthetic is materially increased when it is administered through a cavity in which virulent pathogenic organisms abound.

Special Precautions.

Before laparotomies, in the course of which it is expected to open the stomach or small intestine, some surgeons give only sterilised milk and water for one or two days before the operation. This would appear to be unnecessarily fastidious, because the chyme in the duodenum and upper jejunum is to be regarded as sterile under ordinary conditions, and the stomach contents, if any, are practically so after the routine treatment described above.

In cases of pyloric stenosis the stomach may empty so incompletely that a mass of decomposing foodstuffs is left in it even after the consumption of soft foods only. In such a case it is wise to wash the stomach out the night before operation, and afterwards to give fluids only in small quantities.

Before operations on the biliary apparatus, the preparation of the patient demands peculiar attention, and the nature of the preoperative treatment varies with the presence or absence of jaundice. It is wise to preface all operations on the biliary tract with the administration of hexamine, gr. 10, t.d.s., for a week at least. The object of this is to disinfect the bile passages. In the presence of jaundice two risks must be guarded against before operation is undertaken. One is hæmorrhage on account of the lengthened coagulation time of the blood in these patients, the other is the relative hepatic insufficiency likely to have been produced by biliary obstruction. The risk of hæmorrhage should be anticipated by the intravenous injection of calcium chloride, 5 c.cm. of 10 per cent. solution, once daily for three days, taking great care that the whole of the solution is delivered within the vein and that none escapes into the subcutaneous tissue. Hepatic insufficiency is guarded against by the administration of glucose to restore

the glycogen reserve, to combat the tendency to acidosis, and to spare the liver the strain of dealing with large quantities of amino acids. Glucose is most easily administered per rectum, 10 drachms glucose and 1 drachm bicarbonate of soda in a pint of water.

Where chronic obstruction is present in the colon, this may be relieved by preoperative preparation with enemas and the feeding of suitable food to the patient. Such intelligent treatment is likely, if successful, to remove much of the risk of operation for the permanent relief of colonic obstruction. When unsuccessful, these measures must be supplemented by a preliminary operation to relieve the obstruction before anything further is attempted in these cases.

The preparation of patients for operation upon the genito-urinary system demands special consideration, and cannot be discussed within the compass of this article.

In surgical emergencies the urgency of the patient's condition is such that any prolonged preparation before operation is out of the question. There are, however, one or two points in the preoperative treatment of acute cases which are calculated to increase the chances of success. The onset of an abdominal catastrophe, such as the perforation of a viscus or acute pancreatitis, gives rise to immediate shock and prostration, so great that the patient is a bad "operation risk" during the first hour or so after the event. Such a patient is best treated by a full dose of morphia after the diagnosis has been made, and by being kept warm in bed between blankets with hot-water bottles. The initial severe shock passes off in an hour or so under such treatment, and the patient is left in a condition better adapted to withstand the further shock of operation.

In acute appendicitis, especially in children, the hour or two that may have to elapse before operation is most usefully spent in the administration of glucose per rectum. This is a precautionary measure against delayed anæsthetic poisoning in these cases susceptible to this dire event. Acidosis is already present in a large proportion of them; for they have eaten nothing for some time before operation, and an acute septic process is at work. The number of cases of acute appendicitis in children showing a positive Rothera's test for acetone bodies in the urine must be a large proportion of the total. The writer knows of no statistics in support of this statement; but his experience is that the test is positive in the majority of such cases.

The washing out of the stomach in cases of acute intestinal obstruction is a preoperative measure which is time-honoured. Its efficacy, however, is doubtful, because the stomach usually refills with the dark regurgitating fluid as quickly as it can be emptied. For this reason stomach lavage has not established its place in preoperative preparation of patients in, or approaching, the stage of fæculent vomiting from intestinal obstruction. In such cases the use of spinal or regional anæsthesia seems to hold out better hope of success than does general anæsthesia with its attendant risks of vomiting and aspiration of foul liquid into the lungs.

The smooth convalescence of many patients after emergency operations before which routine purging and starvation were impossible to carry out first attracted the writer's attention to the subject of this article. Doubt as to the wisdom of the old methods of preparation was aroused by noting the frequent occurrence of tympanites after simple laparotomies. The scheme outlined in this paper was evolved to effect the changes which were considered desirable.

It must be admitted that the majority of patients undergoing operations with general anæsthesia convalesce well whatever their preoperative preparation. It cannot be gainsaid, however, that careful attention to the simple points mentioned in the scheme above has the most soothing and beneficial effect, and that patients recuperate the better for it.

This good effect, moreover, is so great as to be well worth the trouble and care taken in inducing it. It is in cases where the peritoneal cavity is opened that the benefits of such careful preparation are most manifest; the advantages are but little less remarkable in cases where the operation is on other parts of the body.

THE RELATION OF FUNICULITIS TO HYDROCELE IN EGYPT.

BY ALI BEY IBRAHIM, M.B.E.,
SENIOR SURGEON TO KASR-EL-AINY HOSPITAL; PROFESSOR OF SURGERY, FACULTY OF MEDICINE, CAIRO, EGYPT.

CELLULITIS of the spermatic cord has long been recognised as a fairly common affection in the East. In Egypt F. C. Madden [1] drew attention to the condition in 1907. In Ceylon, where it had for long been known, A. Castellani [2] began to investigate it in 1904. In 1908 he described it more fully, giving it the name of endemic funiculitis.[3] In 1909 D. K. Coutts,[4] at Kasr-el-Ainy Hospital, made a complete study of the condition, and published clinical and bacteriological particulars about it.

Incidence.

During the four years 1921–24, 105 cases were admitted to Kasr-el-Ainy Hospital for this complaint and about double this number were treated as out-patients. These figures, however, represent the severe or moderately severe cases which form a very small percentage of the total incidence of the disease. The commonest form is so mild, causes so little inconvenience, and is of so short a duration, that the free hospital class of patient does not usually seek advice for it. In the better-class patients seen in private practice one meets with two or more cases for every one case seen in hospital.

It occurs more often in April, May, and June, though it is present all the year round. It is a disease of young men of 15 to 30 years. I have seen it once in a man of 60, but never in a child. It is usually unilateral, but may affect both sides, either simultaneously or separately; and the attacks are usually repeated at variable intervals.

Ætiology.

Castellani believes the condition to be a filarial disease with a superadded streptococcal infection. He found in the blood of several cases a filaria similar to, but, in his opinion, distinct from, *Filaria bancrofti*. Coutts succeeded in growing a Gram-positive diplostreptococcus from the inflamed cord as well as from granular patches in the urethra. But although the short streptococci can be demonstrated by film and culture in most cases of this disease, filariæ in blood films taken at night or in day-time can rarely be found. As a routine, the examination of blood for filariæ was not done on cases of funiculitis admitted to Kasr-el-Ainy Hospital, but in the last 12 cases examined filariæ were found in two only.

Varieties.

For practical purposes three varieties of the disease may be described: (1) gangrenous, (2) suppurative, and (3) non-suppurative. The non-suppurative variety may further be subdivided into a severe and a mild form. The suppurative variety is decidedly less common than the non-suppurative. It is interesting to note, however, that, whereas only 3 of 84 cases seen by me in private practice were of the suppurative variety, yet 70 per cent. of the cases admitted to Kasr-el-Ainy Hospital were of that variety. The non-suppurative variety does not cause enough general and local symptoms to drive the lower-class patient to hospital.

(1) In the *gangrenous type* the inflammation is so severe that all the vessels of the cord become throm-

[1] THE LANCET, 1907, i., 505.
[2] Manual of Tropical Medicine, second edition.
[3] THE LANCET, 1908, ii., 15. [4] Ibid., 1909, i., 227.

bosed, the blood-supply is cut off, and the testicle and a long piece of the cord become gangrenous. The onset is sudden and the patient becomes quickly and profoundly septicæmic and dies in two or three days, even in spite of early interference. Luckily enough it is the rarest of all forms.

2. *Acute suppurative funiculitis* usually starts suddenly with rigors, vomiting, and fever. Concomitantly the spermatic cord becomes painful, tender, and greatly swollen, and rapildy goes on to suppuration, which, in the severer type of case, may spread to the pelvic and retroperitoneal cellular tissues. The testicle is usually only slightly enlarged though extremely tender, and, as a rule, there is little or no effusion in the tunica vaginalis at this stage of the disease. As the case advances the general condition goes from bad to worse; the tongue is furred and dry and the patient looks profoundly septic. There is no tendency to spontaneous recovery and, if operative interference is delayed, or sometimes in spite of operation, septicæmia or septicopyæmia sets in. Abscesses may form all over the body, the pyæmia selecting especially the knee-joint. In every case the same diplo-streptococcus could be demonstrated.

The structures of the cord are covered and matted together with lymph exudate and bathed in pus. The blood-vessels are clogged with septic thrombi. The vas deferens is actually inflamed and pus can be squeezed out of its lumen. Microscopically the picture is one of acute inflammation with, however, a marked increase of the eosinophile element in the cellular infiltration. Cultures from the exudate in the tunica vaginalis are always negative, but from the cord itself the diplococcus can always be grown.

The following is a typical leucocyte count of one of these cases: total, 19,750; polymorphs, 62 per cent.; lymphocytes, 18 per cent.; eosinophiles, 20 per cent.

3. *Acute Non-suppurative Funiculilis.*—This is the most common variety of the disease; it has long been recognised in Egypt, being usually described as thrombosis of the spermatic cord. Only comparatively recently has it been recognised as a variety of endemic funiculitis. Though the onset is as sudden as in the suppurative variety, constitutional symptoms do not usually amount to more than a slight degree of fever. There is a dragging pain in the groin and a moderately hard and tender swelling on the affected side. The structures of the cord are matted together. The veins can be felt thrombosed and the corresponding epididymis is slightly tender. But neither the general nor local condition is, as a rule, severe enough to send the patient to bed or keep him from his daily work. Pain and swelling may be so insignificant as often to pass unnoticed by any but an observant or hypochondriac patient. The condition is not progressive. Slow absorption begins at about the end of the first week, so that by the end of the second or third week the infiltration has nearly cleared up, leaving the cord only slightly more fibrous than before. The severer type of this variety of the disease is rarely met with. In it both general and local symptoms are greatly exaggerated, and, though in the cord itself actual suppuration is not detected, pyæmic symptoms may supervene, and the same organisms can then be found in a pyæmic joint or abscess elsewhere.

Pathology.

Investigation of this non-suppurative funiculitis is made difficult by the fact that the disease is not fatal and operative interference is not indicated, so that neither a post-mortem nor an ante-mortem examination of sections or specimens is easy. But I was lucky enough to get the consent of 12 patients for an exploratory operation; and, in some cases, actually did a partial excision of the cord (minus the vas) for pathological examination in the different stages of the disease. Macroscopically, the cord looks fibrous and the structures are matted together and cut like cheese. Thrombosis is present in all or most of the vessels, and from some of the veins a bead of pus can sometimes be expressed, though there are no localised abscesses in the cord. In fact, the histology of this condition resembles that of the suppurative variety (acute inflammation with marked eosinophile infiltration, &c.), except that suppuration is not present. It is noteworthy that in cases where pus was actually demonstrated inside the veins healing took place by first intention. In this variety culture from the cord sometimes fails.

Of the 12 cases, 4 were examined at the end of the first week, 4 at the end of the second, and 4 at the end of the third.

First week.—The microscopical picture is typical of phlebitis and periphlebitis together with lymphangitis and cellular infiltration of the cellular tissue in which the eosinophiles predominated.

Second week.—Clot that filled up the vein shows signs of the disintegration and organisation and the formation of fibrocellular tissue in other parts of the cord.

Third week.—Some veins are obliterated; others have thickened fibrosed walls and patient lumen simulating arteries to the naked eye. The rest of the cord (excluding the arteries and vas) is transformed into fibrous tissue in which no lymphatics can be detected.

There is no marked leucocytosis, but the relative number of eosinophile cells in the blood ranges between 6 and 20 per cent. Examination of the cord after one or more of these attacks reveals sclerosis, fibrous tissue predominating round and between the constitutents of the cord as well as in the adventitia of the veins. The walls of the latter look, to the naked eye, like thick arterial walls, and the lumen in some of them is found obliterated.

Sequelæ.

The above is the clinical and pathological picture of endemic funiculitis as seen in Egypt. But what is the further history of the cases? I was fortunate enough to discover it in some of my patients seven years ago, and since then have tried to follow up all such cases. I have repeatedly found that, either during an attack, towards its end, as absorption is taking place, or sometimes even after all signs and symptoms of funiculitis have cleared up, a hydrocele of the tunica vaginalis gradually formed on the affected side. A single attack of mild funiculitis may not result in a hydrocele, but further attacks always produce hydrocele, or enlarge a pre-existing one. Such hydroceles persist and usually go on enlarging after the attacks and are not to be compared with the type of inflammatory and temporary hydrocele met with, for instance, in gonorrhœal epididymitis, which tends to become absorbed as the inflammation subsides.

I now look upon funiculitis as the main, if not the only, cause of the hydroceles so prevalent in Egypt, and up to now labelled idiopathic. In four years 424 cases of hydrocele were admitted to Kasr-el-Ainy Hospital for treatment and more than 730 were tapped in the out-patient department. Of these a negligible percentage were secondary to orchitis, whether traumatic, syphilitic, gonorrhœal, or otherwise; but the huge majority were of the so-called idiopathic variety. Loosely fitting clothes, donkey-riding, relaxation of the scrotum from heat, and excessive coitus are among the factors which have from time to time been suggested as causes of hydrocele in Egypt. Yet hydrocele is as common in the trousered effendi as in the wide-robed sheikh, in the town-dweller as in the rural fellah, and in the Upper as in the Lower Egyptian. And it will be found that all such theories fall to the ground on investigating the histories and habits of any large number of cases. In thousands of cases of hydrocele all investigators have failed to find filariæ in the night blood; but it must be remembered that the same negative results have been obtained in elephantiasis during any but the acute stages of the disease.

In my opinion it is quite justifiable to consider the effusion in the tunica vaginalis as the results of the permanent obstruction of the testicular lymphatic drainage produced by one or more attacks of funiculitis in the same way as elephantiasis is the result of the

repeated attacks of lymphangitis that occur in filariasis. The fibrous thickening of the spermatic cord so constantly seen when operating on hydroceles and which has always been considered to be due to the dragging weight of the hydrocele is, in my opinion, nothing but the permanent effect of a previous attack (or attacks) of funiculitis. I have examined sections through the spermatic cords of three or four cases of hydrocele taken at random, and have found in each of them the same increase of fibrous tissue and the same thickening of the adventitia of the veins as is found in the non-suppurative cases of funiculitis after the acute symptoms have subsided (vide supra).

Conclusions.

(1) Hydrocele is common in countries where funiculitis is prevalent. (2) Funiculitis exists in Egypt to a much greater extent than one is led to believe by analysing the admissions to a free hospital. (3) It occurs in two forms—a severe form ending in suppuration and a milder form ending in absorption. (4) There is a great similarity between funiculitis and the attacks of lymphangitis met with in tropical elephantiasis, the underlying cause being probably a filaria, and the exciting cause a form of streptococcus. (5) The lymphatic and venous obstruction resulting from these attacks results in the formation of the so-called idiopathic hydrocele, which therefore corresponds to the subcutaneous lymphatic œdema in elephantiasis.

TWO CASES OF
DIABETIC GANGRENE TREATED BY CONSERVATIVE SURGICAL MEASURES.

BY R. BROOKE, F.R.C.S. ENG.,
HON. ASSISTANT SURGEON, ROYAL WEST SUSSEX HOSPITAL.

UNTIL quite recently the operation of high amputation has been the treatment almost universally employed for diabetic gangrene. There is no doubt that a large number of successes have followed when this has been done, the patient subsequently remaining free from a recurrence for some considerable time. There is a distinct clinical type of the disease, the so-called "fulminating type," in which the spread of the gangrene is so rapid that operative measures cannot be undertaken, or in which, if high amputation is attempted, gangrene invariably and rapidly develops in the stump. Excluding altogether these comparatively few fulminating cases, there is no doubt that the number of recurrences after high amputation is at the present time much larger than it should be. The reason for this is not far to seek. It is largely due to prevarication with unnecessary delay before operative measures are adopted, when the time factor is one of extreme importance. The patient (and sometimes the surgeon) is reluctant to sacrifice such a large portion of the limb; and will temporise in the hope that an operation will prove unnecessary.

The use of insulin as a preoperative measure has done much to increase this delay; for with its use the progress of the gangrene may be checked for a time, thus too often leading to a sense of false security. A moment's consideration as to the underlying pathology of the disease—that it is a malnutrition phenomenon due essentially to changes in the blood-vessel walls of a permanent nature—must lead to the realisation that whatever the action of the insulin is, it is only a transient one, and cannot materially affect the course of the gangrene. Sooner or later the gangrene will recommence to spread, and the insulin will then cease to exert its usual beneficial effect. The amelioration of the local condition is of a temporary nature only, and does not warrant delay in amputation. Insulin, however, has its place in the operative treatment of diabetic gangrene. Used as a preoperative measure by rendering the patient sugar-free, or temporarily reducing his blood-sugar, it places him in a better position to withstand the anæsthetic and the operation itself.

Repeated trials have proved conclusively that low amputation by itself in the majority of cases will not prevent the spread of the gangrene. Recently at a meeting of the Royal Society of Medicine some successes were reported following more conservative treatment in cases of senile gangrene and Raynaud's disease. The two most successful measures used were the operations of (1) periarterial sympathectomy, (2) ligature of the femoral vein. Profiting by the experience of others, and hoping to improve on their methods, in the two cases about to be described, a combination of these two operations was used, and found to be of advantage. The reasons for using this combined operation will be discussed later. A brief outline of the chief points in the history and treatment of the two cases is as follows.

Clinical Records.

L. M., aged 63 years; married, three children. Admitted to hospital on Dec. 12th, 1926, with a 12 years' history of diabetes mellitus. She had had operations performed on both eyes for cataract some years previously, and also gave a history of numerous carbuncles. The patient was found to be a well covered and robust individual. On the right foot there was a patch of moist gangrene involving the first, second, and third toes, and extending well on to the ball of the great toe, with surrounding œdema of the foot. The dorsalis pedis, plantar, and popliteal pulses were not palpable on the right leg, but were just palpable on the left. Temperature 100°, pulse 100, respirations 20, urine specific gravity 1010, sugar 2·30 per cent., albumin a trace.

Treatment.—On the day of admission insulin, units 15, three times a day, was given, and the urine became sugar-free almost immediately, remaining so throughout her stay in hospital. Subsequently the dose of insulin was reduced first to 10, and later to 5 units per diem. She was kept on a moderately strict diabetic diet. The foot was placed uncovered in a radiant heat bath. It smelt badly, and from time to time exuded a small amount of foul sero-sanguineous fluid. Two days after admission, as the gangrene and the œdema were extending, an operation was performed.

Operation.—Under gas and oxygen an incision about four inches long was made in the thigh. The femoral vessels were exposed in Hunter's canal, and a periarterial sympathectomy performed. For a distance of two inches the adventitia was stripped off the vessel, two minute muscular twigs being at the same time ligatured. No obvious pallor or change in the vessel wall was noticed after removing the adventitia (as reported by previous observers). The arterial wall was found to be thickened, hard, and calcareous. The femoral vein was then ligatured in two places and the wound closed.

At the end of the operation the leg was returned to the radiant heat bath. On the next day—namely, Dec. 15th—a remarkable change was noticed in the limb. The dorsalis pedis, plantar, and popliteal pulses were not now only palpable, but of distinctly greater volume than those of the other limb. This increase in pulse volume has persisted, but in a much less marked degree, right up to the present time. Two days after the operation a line of demarcation was seen at the edge of the gangrenous part. The area of gangrene had not extended since the operation. On the third day the œdema of the foot was less marked, and two weeks later had almost completely disappeared. Five weeks after the operation the gangrenous area was quite dry and mummified, and almost completely separated from the rest of the foot, being held to it by a few connective tissue fibres only. The œdema had entirely disappeared. The temperature was 98·6, pulse 72, and the respirations 20. The urine was sugar-free with 5 units insulin daily. No pain was felt in the diseased limb. The gangrenous part has since completely separated, and the patient is now up and about wearing a surgical boot.

The second case is very similar to the first one.

CASE 2.—S. H., a baker, aged 59 years, had been treated for some years for diabetes, latterly with insulin on which he had remained sugar-free for nearly a year. For some years he had had a painful corn on the ball of the second toe of the left foot. Three days before admission he noticed that the toe was discoloured and painful. At first he took little notice of it, but two days later the condition became much worse, and he presented himself at the hospital.

On admission (Jan. 30th, 1927): temperature 100·6° F., pulse 100, respirations 20. There was well-marked moist gangrene of the second, third, and fourth toes of the left foot, extending up on the dorsum of the foot for a distance of about half an inch, with an area of surrounding œdema extending nearly to the ankle-joint. The heart, chest, and

abdomen on examination were normal, urine specific gravity 1005, reaction acid, sugar, albumin a trace.

Treatment.—The foot was at once placed in a radiant heat bath, and insulin, units 20, was given. The subsequent clinical history of the case is very similar to that of the preceding one. On the day following admission an operation was performed on the left foot; the artery and vein were exposed by a longitudinal incision over Hunter's canal. A periarterial sympathectomy was performed with ligature of the femoral vein. Following the operation the dorsalis pedis, plantar, and popliteal pulses were all temporarily exaggerated in volume on the side operated upon, and a line of demarcation rapidly formed at the edge of the gangrenous area.

On the tenth day after operation, at the man's own request, in order that he could carry on with his business as soon as possible, an attempt was made to shorten the period of his stay in hospital. A Syme's amputation was performed. The wound healed by first intention, and the patient was discharged with a very good, clean, and serviceable stump 14 days later. The urine remained sugar-free with 10 units of insulin daily.

Discussion.

There is good reason to believe that this combined operation of ligature of the femoral vein with sympathectomy of the artery is an improvement on either of these measures used by itself. One has only to examine the hard, "gritty," calcareous walls of the blood-vessels in a case of diabetes of some years' duration to realise that, even when denuded of all vaso-constrictor fibres, the power of dilatation of the vessel distal to the site of operation must of necessity be impaired, owing to the mechanical obstacle caused by the degeneration of muscular tissues. Vaso-dilatation does occur after this operation—of that there is not the least doubt—and a form of active congestion of the limb is thus produced. It is to this active congestion that the good effects of the treatment are attributed. Ligature of the vein produces a similar hyperæmia by passive congestion. When these two methods of active and passive congestion of the limb are combined a summation effect is produced.

The increased vascularity of the periphery of the limb following this operation is seen by the increased volume of the plantar, dorsalis pedis, and popliteal pulses, and the line of demarcation which rapidly forms at the advancing edge of the moist gangrenous patch. This vascularisation of the part should go far in making possible more conservative treatment in the form of low amputations. Low amputations would seem to be preferable to non-operative measures, such as allowing the part slowly to slough off—because of the increased strain thrown upon the subject by the suppuration (lowering both the local and general resistance to the disease). Larger doses of insulin will be required to keep him sugar-free, and they may fail to control the sugar output altogether. Also from economic reasons the time factor is, in some cases, a not inconsiderable one, and convalescence is very much shortened by amputation.

Conclusion.

The method adopted in the treatment of diabetic gangrene as illustrated by two cases was briefly as follows: 1. A very short preliminary course of insulin with radiant heat was given, in order to render the patient more fit for the operation to follow. This was followed by (2) early operation. The operation of choice was a combined method of periarterial sympathectomy of the femoral artery in Hunter's canal, with ligature of the femoral vein. This was thought to be preferable to either operation by itself, as the amount of hyperæmia produced, on which the success of the operation depends, was correspondingly greater. (3) After an interval of ten days or a fortnight, low amputation (a Syme's) was performed in the second case as a time-saving measure to ensure more rapid convalescence.

Clinical and Laboratory Notes.

A NOTE ON THE CHARACTER OF THE CEREBRAL CEREBRO-SPINAL FLUID IN A CASE OF GENERAL PARALYSIS.

BY HILDRED CARLILL, M.D. CAMB.,
PHYSICIAN TO WEST END HOSPITAL FOR NERVOUS DISEASES;
AND
W. E. CARNEGIE DICKSON, M.D., B.SC., F.R.C.P. EDIN.,
PATHOLOGIST TO THE HOSPITAL.

KNOWLEDGE of the character of the cerebro-spinal fluid withdrawn by lumbar puncture, in health and disease, is now almost universal. Knowledge of its character when withdrawn by cisternal puncture is fairly common. It is unlikely, however, that many have had an opportunity of examining the fluid in a case of syphilis of the nervous system, in the state in which it lies in the ventricles of the brain, and a recent experience in hospital practice may be of interest.

The patient was infected about the age of 17. He began to develop signs of general paralysis early in 1927, at the age of 41, when he had been elsewhere under treatment for tabes dorsalis, intravenous and oral, for four years. His serum and lumbar cerebro-spinal fluid had given completely positive tests for syphilis in 1923, and gave them again on admission in 1927. Four combined treatments of salvarsan and salvarsanised serum were given; on the three last occasions the serum was run into the right and left cerebral lateral ventricles alternately through a needle passed through a hole drilled in the skull.[1]

[1] Sir J. Purves-Stewart: THE LANCET, 1925, ii., 1159: Hildred Carlill: THE LANCET, 1926, ii., 1212.

Table of Results.

	Ventricular fluid.			Lumbar fluid.		
Dates of withdrawal ..	(1) 14/3/27.	(2) 31/3/27.	(3) 7/4/27.	(1) 7/3/27.	(2) 31/3/27.	(3) 7/4/27.
Cells per c.cm. ..	2 S.L.	1 S.L.	1 S.L.	43. S.L. .. 93·0 % P.C. .. 0·5 % E.C. .. 4·0 % P. .. 2·5 %	21. S.L. .. 94·0 % P.C. .. 0·0 % E.C. .. 1·5 % P. .. 4·5 %	18. S.L. .. 95·0 % P.C. .. 0·0 % E.C. .. 2·0 % P. .. 3·0 %
Total protein	0·01 %	0·0075 %	0·0075 %	0·05 %	0·04 %	0·035 %
Globulin	Faintest trace.	Nil.	Nil.	Marked excess.	Slight excess.	Slight excess.
Wassermann reaction.	Positive (over 10 M.H.D.'s of C.)*	Positive 21 M.H.D.'s.	Positive 17 M.H.D.'s.	Positive (over 10 M.H.D.'s.)*	Positive 25 M.H.D.'s.	Positive 24 M.H.D.'s.
Lange's colloidal gold curve	3333210000	4433210000	$44\frac{4}{3}3210000$	5555432000	5555543100	5555543200
Chlorides	—	0·702 %.	0·714 %.	—	0·749 %.	0·742 %.
Sugar †	—	Normal.	Normal.	—	Normal.	Normal.

S. L., small lymphocytes. P. L., plasma cells. E. C., endothelial cells. P., polymorphs.

* The upper limit of inhibition of hæmolysis was not tested in the first specimen of each. M.H.D. = minimum hæmolytic dose of complement which hæmolyses 1 c.cm. 5 per cent. sensitised sheep's red blood corpuscles.

† Sugar was not tested for quantitatively, a 1 : 10 dilution of Fehling's solution, with an equal amount of cerebro-spinal fluid, giving almost complete reduction, as in most normal cerebro-spinal fluids.

We are not concerned here to defend or otherwise the rationale of treatment by salvarsanised serum. We merely wish to draw attention to the character of the ventricular, as compared with the lumbar, cerebro-spinal fluid; they were withdrawn simultaneously except on the first of the three occasions. From the table of results given above it will be seen that the first specimens of ventricular and lumbar fluid were obtained on different dates. The results suggested that the investigation of fluids obtained simultaneously would be of considerable interest.

A point of interest in connexion with the Wassermann reaction was that, with the ventricular fluids, the hæmolysis tailed off over a considerable number of tubes—there was no free complement in the fluid itself—there being a trace of hæmolysis even in the earlier tubes, whereas with the lumbar fluids the point between inhibition and hæmolysis was sharply defined. Incidentally, in none of the fluids was any blood present, nor were spirochætes detected in any of them.

FATAL CASE OF FOOD POISONING,

WITH DELAYED NERVOUS SYMPTOMS.

By A. H. D. SMITH, *M.C.*, M.B., CH.B. EDIN.,

HON. SURGEON AND RADIOLOGIST, LLANELLY GENERAL HOSPITAL.

THE following are notes on a case of poisoning attributable to food.

The patient, a commercial traveller, aged 53, was first seen by Dr. Hugh John, of Llangennech, on July 12th, 1927, about noon. He stated he had always enjoyed good health and gave the following history of his illness.

On July 10th, while out camping with his wife and daughter and three friends, he had a meal about 8 P.M. and ate heartily of a veal and ham pie. All the other members of the party except his wife ate the pie, but his daughter ate only a very small portion. The daughter did no develop symptoms, but all the others, including the wife who did not eat the pie, developed gastro-enteritis. The food eaten by the party on the Sunday, with the exception of the pie, was prepared by the wife.

At 2 A.M. on July 11th one of his friends was taken ill with diarrhœa and vomiting; another had similar symptoms at 8 A.M., and another at 2 P.M. His wife was taken ill on Tuesday; her symptoms seem to have been mainly those of gastritis and she was up and about on Friday. The daughter did not develop symptoms.

The patient left his home by the 9.10 train on the morning of July 11th seemingly quite fit. He arrived at his destination at 10 P.M. and then complained of feeling unwell. His symptoms seem to have been at that time those of malaise, and he went to bed. In the early hours of the next morning he developed severe diarrhœa and vomiting and was seen by Dr. John about noon. At this time he complained of severe diarrhœa and vomiting and of thirst, and gave the history already recorded. On physical examination nothing untoward was found. The pulse was full and regular and the rate was under 100, the temperature was 102° F. The motions were extremely frequent, greyish in colour, and watery in consistence, They contained no blood or slime. Vomiting and retching was very marked, and the vomit consisted of what he had just taken. Dr. John gave him a gr. ¼ pil. morph. and advised abstinence from all food, recommending the patient to take sips of water. The symptoms up to this time were those of a severe gastro-enteritis.

The next day, July 13th, the gastro-enteritis was still very marked but the temperature had fallen to normal. On that night Dr. John asked me to see the case. At that time the patient complained of abdominal discomfort and of exhaustion and thirst. The vomiting and retching were still very severe and the movements of the bowel almost continuous. The temperature was normal and the pulse-rate about 90. The pulse was regular in rate and rhythm and surprisingly good for a patient who had had such severe symptoms and persistent dehydration. He was alert mentally and answered questions readily and clearly and at this time there was not the slightest suggestion of any involvement of the nervous system. He was unable to retain anything given by mouth so morphia, gr. ¼, was given hypodermically, and those in charge of him were advised to give him brandy ℥ss. in water every two hours and albumin water.

By the morning of July 14th he had improved somewhat and by Friday, the 15th, he was able to keep his feeds down for a longer time. He still, however, suffered from retching and was unable to retain a mixture of bismuth salicylate. The diarrhœa had subsided to a large extent, but he was inclined to get out of bed and his mental state was not as alert as it had been previously. There was a suspicion of a slight delirium. He had also complained of dimness of vision and of transient diplopia and there had been a suspicion of slight ptosis. I now saw him again late on Friday, and suspected from these nervous symptoms that the infection had been by *Bacillus botulinus*. As, however, the onset of nervous symptoms had been so long delayed it was felt that the use of antitoxin was not likely to be of any value. A marked feature at this stage was the coldness and clamminess of his limbs in marked contrast to his pulse which was full and regular and about 90 in rate.

Early on Saturday morning, July 16th, he had what his attendants thought was a convulsion. When seen by his doctor he was stuperose and not convulsed. The description given, however, by those present was most suggestive. I was called to see him in the evening. He was in a deep stupor and could not be aroused. He did not recognise me. His extremities were again extremely cold and clammy but the pulse was good, regular in rate and rhythm, and about 100. He was retaining his feeds and the diarrhœa had much improved. In the early hours of the morning of July 17th his respirations became very rapid, and he rapidly went downhill and died.

The interesting feature in this case is the delayed onset of recognisable nervous symptoms in contrast to a fairly rapid onset of classical symptoms of gastro-enteritis. It was only after five days that evidence of involvement of the nervous system appeared. In view of the statement[1] that antitoxin has definite value if injected within a few hours of the ingestion of contaminated food, antitoxin was not given. I now wonder whether antitoxin treatment might not have been advantageous even if given late on in the disease.

A further interesting feature in this case was the regular and full pulse contrasting with the clamminess and coldness of the limbs so suggestive of collapse. The illness of his wife, who had not eaten the pie, is peculiar.

TWO CASES OF

ACUTE HÆMORRHAGIC PANCREATITIS.

BY J. D. DHRUV, M.S. BOMBAY, F.R.C.S. ENG.,

SURGEON, JAMSETJI JIJIBHOY HOSPITAL, BOMBAY.

THE following cases have interesting features.

CASE 1.—A man, aged 45, complained of dull pain in the epigastrium for the previous four days. The severity of the pain had forced him to take to his bed on the last two days, and for three days there had been severe constipation. On examination there was marked tenderness and rigidity in the epigastrium. The tongue was moist and clean; the temperature was 101° F., and the pulse-rate 120. As influenza was prevalent he was labelled "abdominal influenza." Next day the temperature was 102°, and the pulse-rate 110, but the patient said he was feeling better, though he looked anxious. On the seventh day the pulse-rate rose to 140 and the temperature to 104°. The pain became more severe and the patient died.

At autopsy patches of fat necrosis were found in the omentum and areas of softening and necrosis in the pancreatic tissue.

CASE 2.—A stout male, aged 40, for a week had continuous dull aching pain in the hollow of the stomach, not related to taking food, though it was worse between 3 and 5 P.M. It did not interfere with his sleep and for five days he continued to attend to his work. Then he took to his bed, and when I saw him seven days from the onset he was acutely ill and had an anxious look. There was rigidity and tenderness in the region of the stomach. On question he admitted that he had had a similar attack two years before, which had subsided after a week's treatment in bed. Since then he had suffered off and on from flatulent dyspepsia. A tentative diagnosis of perforated gastric ulcer or acute cholecystitis was made. The patient's friends refused to allow abdominal exploration, and he was kept under observation. He was placed in Fowler's position, and the diet was restricted to small sips of water. An enema was given without result. The tongue was clean and moist.

On the third day after admission he became worse; the temperature was 102° F and the pulse-rate 120. In the evening, however, the bowels were opened spontaneously; he felt better; the temperature fell to 98·5° and the pulse-

[1] Price's Text-book of the Practice of Medicine, p. 375.

rate to 98. But during the same night his condition again took a sudden turn for the worse; the temperature shot up to 104°, the pulse-rate was 140, and localised tenderness was detected in the right iliac fossa.

On the fourth day, in the morning, he became steadily more ill. He developed severe hiccup and vomited four times, the vomit being dark-coloured fluid, which was found to be bile. Consent was now obtained for operation, and a right paramedian incision about 5 in. long was made. The peritoneal cavity was opened and the omentum presented itself showing some yellowish areas of fat necrosis. A little blood-stained fluid was mopped out. The stomach and duodenum showed no perforation; a quantity of blood-stained fluid escaped from the lesser sac and the pancreas showed hæmorrhages and presented areas of sclerosis suggesting existence of a chronic pancreatitis. The appendix was adherent to the cæcum. The gall-bladder was distended and some concretions were felt at its neck. After protecting the general peritoneal cavity I aspirated a quantity of fluid from the gall-bladder. It was black, like Indian ink, and had the same character as what had been vomited in the morning. After incision of its capsule the pancreas was drained through the lesser sac. The gall-bladder was rapidly drained through another incision on the right side. The patient collapsed, however, two hours after the operation and died, in spite of intravenous injection of saline and of pituitrin.

The onset in this case was very insidious; the patient suffered from a subacute type of pancreatitis. It is difficult to explain the lull in the symptoms during the afternoon before the day of operation. Probably the fluid exudate in the lesser sac escaped into the general peritoneal cavity through the foramen of Winslow and led to toxic absorption, giving rise to rapid pulse, high temperature, and hiccup. The vomiting of pure bile was a very striking phenomenon due to regurgitation through the duodenum. I examined the patient specially for cyanosis and for ecchymosis in the loins, which is considered pathognomonic by some surgeons, but they were absent.

Medical Societies.

ROYAL MEDICO-PSYCHOLOGICAL ASSOCIATION.

JOINT MEETING WITH THE SECTION OF MENTAL DISEASES OF THE BRITISH MEDICAL ASSOCIATION.

AT a joint meeting held on Friday, July 22nd, in the Edinburgh University New Buildings, Dr. HAMILTON MARR (Commissioner of Control for Scotland) presided and Prof. G. M. ROBERTSON opened a discussion on the

REPORT OF THE LUNACY COMMISSION.

The Lunacy Laws of England and Scotland were, he said, in urgent need of amendment. Great changes in social life and in the scientific world had occurred since the passing of the Scottish Act in 1857, but this Act had the advantage that it recognised the paramount position of the medical profession in the treatment of mental diseases. Under it no layman was called upon to see the patient on certification, and no lay committee was responsible for his removal on discharge. To this feature must be ascribed the success of the Scottish system, which had gained the complete confidence of the people. No case of improper detention had ever been recorded in the courts. The English Act of 1890 was a complete, logical, and accurately drafted instrument. Its very perfection from the legal and administrative points of view had been a calamity to the patient. The medical aspect of the problem had been overshadowed by the haunting fear of improper detention, so that laws enacted for the welfare of the insane person had turned out to be to his detriment. One gratifying and immediate result of the Royal Commission had been to allay all anxiety in the minds of reasonable people as to improper detention; such cases had not been found. Future legislation, therefore, should not be dominated by suspicion and misgivings. The Commission had also found that, since the stigma of certification was keenly felt, it should be a last resort and not a preliminary to treatment. The facilities for treatment without it therefore called for extensive development. The keynote of the past had been detention; the keynote of the future should be prevention and treatment. The arrangements suggested for voluntary treatment were satisfactory. For the involuntary three procedures were recommended: the Emergency Order, the Provisional Treatment Order, and the Reception Order. The first of these, signed by one doctor and a friend or public official, was not a certificate of insanity and remained in force for seven days only. It appeared quite satisfactory.

The Provisional Treatment Order.

In the provisional order one doctor would make the recommendation, which would last from one to six months only. It was intended to ensure treatment for the probably recoverable patient without certification. The signature of one doctor only was, however, a mistake; as a safeguard and a second witness or observer only, apart from his value as a second medical opinion, the second doctor must meet with general approval. A niggardly economy where the liberty of the subject was concerned was indefensible, but it was particularly objectionable if the omission of the second doctor were responsible for the repeated visits by laymen.

Another difficulty was the basis of the order, which was made a matter of prognosis, notoriously the most difficult and uncertain problem in psychiatry. It had to be solved by the general practitioner who had little experience and by the justice who had none. Every successful doctor was an optimist, and it might safely be assumed that if this became law every patient, save a chronic or absolutely hopeless case, would get the benefit of the doubt and be treated under the provisional order—an excellent thing. The terms were better expressed in the Scottish Schedule G, which used the words "where the malady is not confirmed" and "with a view to his recovery." The intention could always be honestly remedial, however faintly hopeful the outlook. It would be better to drop the dubious procedure of prognostication altogether, and give every patient for whom there was the least hope the benefit of the provisional order treatment for six months. No objection to full certification could be taken after the six months' test had failed, or for chronic cases.

It was a matter of profound regret that the justice had to intervene in the provisional order; such a recommendation was astonishing in a report that recorded no case of improper detention and that breathed medical aspirations and professed therapeutic and preventive ideals. It was clear that unmedical legal procedures had in the past been the chief impediment to early treatment. The treatment to be given under this order was only temporary and essentially remedial. There was no need for the justice, particularly if two medical men were involved. Miscarriages of justice had occurred in the law courts, yet no comparable cases could be found in the mental hospitals. In Scotland for 70 years thousands of persons had been placed in mental hospitals without seeing a magistrate, and no case of improper detention had ever been found. This record of the medical profession was beyond all praise, and proved that their honour and vigilance were no mean safeguard.

Another safeguard which the Royal Commission did not seem to have appreciated was the Scottish right of appeal to two independent medical men. The sheriff's reception order was wholly given on the written opinions of the two doctors first called in, and the patient, his friends, the sheriff, or the General Board of Control could call in two other doctors, who formed for the time being the supreme and final court of appeal. Thus in Scotland there was a purely medical system that afforded complete protection, had stood the test of time, and satisfied public opinion.

Judicial Intervention.

Infringement of the liberty of the subject without the intervention of the judicial authority was not without precedent in the domain of mental disease. It appeared to have been practised in England for 45 years without abuse, and was still practised in Ireland. Judicial intervention was not desired by the patient nor by his relatives. It was quite alien to medical feeling. It created difficulties, added complications, and caused delay at a time of great trouble. If there must be some form of judicial intervention the Scottish procedure at least preserved the integrity of the medical ideal, respected the sanctity of the home, and introduced the judicial element in a purely legal capacity. The sheriff who examined the certificates was an experienced barrister and a salaried judge; he made no quasi-medical examination of the patient, and if the forms were in order and the facts satisfied him he invariably signed the order. All these duties were just as carefully performed by the General Board of Control, and there was no reason why the certificate should not be signed by that body instead of by the sheriff.

Dr. Robertson then drew a vivid picture of the process of treating a mental patient under the proposed scheme when the justice had to see the patient in his own home, confer with relatives and doctors, and exercise a "directed discretion." Six months later the justice must see him again, and at this time the patient could employ a solicitor; with a manic patient lively scenes might well occur. The more nearly judicial intervention was judicial in character, the more closely would this picture accord with actual events. The perfunctory way in which the justice often performed his duties in the past might have been a saving grace. It was clear that adequate protection existed and was afforded by other means. To Scotsmen this form of amateur medicine seemed a monstrous and intolerable invasion of the sphere of the physician, and nothing less than a caricature and a mockery of medical science and practice. Medical men in England had acquiesced in it in the hope that it would relieve them of some responsibility; that hope had not been fulfilled.

In conclusion Dr. Robertson said that the provisional treatment order formed the most striking departure from precedent of all the recommendations in the Report of the Royal Commission. It conferred its privilege not only on voluntary patients, but also on volitional but resistant ones. For the enjoyment of its full benefits, however, there should be certain modifications. Two doctors should be called in, with the right of appeal to two independent doctors. This would make it unnecessary for the judicial authority to visit and see the patient, a requisite which perpetuated those legal formalities that had in the past delayed treatment, blighted attempts at prevention, and differentiated mental disorders from other illnesses. The justice should be replaced by the Board of Control, a strong medico-legal body accustomed to visit patients and familiar with the requirements of the law. The conditions of the order should be altered, from prognosis to the terms of Schedule G.

Discussion.

Dr. E. MAPOTHER said he had been profoundly disappointed with the Report, which was chiefly devoted to the doubtful prevention of non-existent abuses. The public were much more concerned with the questions of where and how than with the precise procedure under which they were to be treated. Voluntary treatment in county mental hospitals, for instance, would make a lot of difference. The Report lacked constructive imagination. The distinction between voluntary cases and involuntary was, *pace* Prof. Robertson, not clear-cut, and this ignoring of the voluntary patient was the Report's chief defect. Many of the most recoverable cases were voluntary, and those ought to have the best treatment without the intervention of justices. Again, under the Report, the voluntary patient who passed into a state of unwillingness would have to be certified within a month (the Provisional Order was nothing but a certificate, except that the patient saw a magistrate more often). Some other method was necessary for these patients, by which they could be treated temporarily outside an asylum. Another grave objection was that the doctor might have to wait seven days to have his patient seen by a magistrate, and that would drive most mental consultants to the use of the emergency order. He was in favour of having a special certifying medical man to give certificates under the Provisional Order. Finally he pointed out that, when the Provisional Order terminated and a reception order was in preparation, a justice, assisted by his clerk, examined the doctor and the patient. The patient might choose anyone he liked to attend on him, and the justice could call upon the doctor to "justify" his certificate. This kind of trial, at which the patient could be represented by counsel and the medical man could not, was most objectionable.

Dr. T. B. HYSLOP reminded the meeting that the first duty of a practitioner was to his patient, the next to the community, and the last to himself. The fear of certification and the stigma which it attached to the family of the patient were, he said, often more formidable than the disease and capable themselves of contributing to the development of mental disorder. He desired a sporting chance of relieving patients of their difficulties without imposing this stigma upon them, and for this reason he welcomed the Report, which would remove many of the evils of certification. He favoured the elimination of the judicial authority, the selection of magistrates with knowledge of the subject, and the provision by local authorities of specialists to advise the general practitioner.

Dr. W. F. MENZIES stated that medical men had everyone on their side in this matter—practitioners, patients, relatives, and friends; against them were only the lawyers and the cranks. Lawyers, however, were necessary to the community. He sympathised with the medical man who, under the Provisional Order, had to have three interviews with a justice and his clerk, and perhaps to forego a whole day's work and travel a long distance to settle whether his patient was to be immured or not. The profession had to decide firmly whether to oppose the Royal Commission's Report altogether, or to take the good points of it and concentrate on amendment, keeping in the forefront the needs of the non-volitional case. He was against opposing the Report, but held that the attendance of justices at the patient's home was absolutely impossible in any but the largest centres. It usually took a justice three weeks to see a patient at present, and with 100 voluntary patients out of 200 in a hospital the scheme would break down. Three-quarters of the non-volition patients would have to be discharged because no justice would ever see them. He suggested that the visiting committees and boards of management of county mental hospitals should be made justices ad hoc.

Dr. RISIEN RUSSELL said he would be content if only England had the privileges of Scotland. He wanted to be allowed to treat patients effectively for at least a year without legal intervention. The issues were: should the profession have the whole say in the matter of certification? and should a doctor be immune from civil action for wrongful certification? Treatment was a medical matter, but depriving a person of civil rights was a legal one. The profession could only claim protection if they accepted legal intervention and were prepared to give evidence on oath. The examination of the patient by a legal authority need carry with it no publicity, and it would be an advantage if the justice had no medical training, for he would view the matter from a standpoint different from the medical one. He welcomed the Provisional Order; the emergency order had been so much abused in England that there was every justification for the interposition of a magistrate. It was reasonable to have a specialist also signing the certificate, and to accept every safeguard of the patient's interests.

Dr. DONALD ROSS (Cassel Hospital) quoted the remark of a medical superintendent at Zürich that the borderline between the sane and the insane was certification alone, and advocated that one of the signatories should be a member of a hospital staff.

Earl RUSSELL said that the Royal Commission had been much impressed by Dr. Robertson's evidence and the system he was able to administer. They did not undervalue the medical point of view, but when dealing with legislation it was no use discussing a matter from that aspect. The public feeling must not be overlooked, and an anti-medical view had been presented to the Commission. For some reason or other there was in England, among the great mass of the population, a suspicion of doctors, and no legislation that ignored that could hope to get through Parliament. The House of Commons represented the stupidity as well as the intelligence of the people. Those opposed to the medical view were not, as Dr. Menzies had suggested, only lawyers and cranks. A vast body of uninformed and uneducated public opinion regarded the doctors as only too ready to certify and without reason. No doubt we should get on as well without the judicial authority; indeed, the Board of Control was the real safeguard. It was entirely undesirable for the justice to have medical knowledge; it was not for him to form an opinion, from a very imperfect medical diagnosis of his own, whether the patient were sane or not. His duty was to see that care had been taken and that the papers were in order. There were the gravest objections to anything like a public or private trial; the less the proceedings took the form of a forensic contest the better. To treat voluntary patients involuntarily would destroy the whole advantage of the voluntary system. The urgency order was often used unnecessarily and it was important that it should not be abused.

Sir DAVID DRUMMOND (Newcastle-on-Tyne) expressed agreement with Earl Russell and pleasure at the good reception the Association had accorded to the Report. He regretted that it had not been possible to protect the practitioner more thoroughly.

Sir FREDERICK WILLIS (Chairman, Board of Control) said that the Minister of Health was very anxious to pass a new Lunacy Law, but the Ministry was not Parliament. Parliament was governed by public opinion, which was still "frightfully superstitious." Something more than formalities prevented people getting mental treatment; they hated to admit that there was anything mentally wrong with them because insanity was still regarded as such a dreadful thing. Patients would be better divided into three groups—voluntary, involuntary, and unwilling. It was not an infringement of a patient's liberty to give him treatment. It was a pity that the Commission's Report stopped short at the statement about treatment for acute recoverable cases; it should have gone further and stated what the Commissioners thought right. It was not for them to consider public opinion. The Board of Control believed that adequate safeguards could be obtained without the intervention of the justice, and suggested that the "Provisional Order" patients should only be admitted to institutions which the Board had previously approved. The Board had been much distressed by certain recent legal cases. It appeared that a jury was an absolutely unsuitable tribunal for this purpose. It was quite absurd for such a body to say they were satisfied that an individual had been sane 12 years before. There was no ground for insisting on two certificates other than the gratification of public sentiment, and a financial point was involved. It was extremely important that everyone should do what they could to break down the superstition surrounding mental illness.

Sir ARTHUR ROSE (Scottish Board of Control) said that the Report was a very valuable strategical contribution, and had secured unanimity by going only just as far as would be accepted. A minority report would have been most harmful to legislation.

Dr. C. O. HAWTHORNE (London) said that the public attitude towards certification must be most carefully considered. The Board of Control was not to blame; it came on the scene too late. The stigma remained even if certification were found to have been wrong a few hours later. Enormous importance was attached to the liberty of the subject. But in addition to these two very important factors there was a third which had impressed him, and that was the position of the doctors at this moment. The practical situation was that many doctors were not only reluctant but determined not to sign certificates under the present circumstances. Deeds of partnership were being drawn up with the condition that neither member should undertake this work. Here was another sentiment which must be respected. Doctors alone were competent to judge when mental disorder existed and how it should be dealt with. Another sound position was that the State came in and said: This is a form of medical treatment which invades the liberty of the subject, and such treatment shall not be imposed until we are satisfied that it is necessary. That being so, it was for the State to accept responsibility when it assumed authority. The doctor might be asked for advice—i.e., for his contribution in the form of evidence, and ought to have the same immunity as other witnesses. The choice of action lay between the high academic doctrine that the public must be educated, and the practical step of accepting the State's claim to intervene, but emphatically telling it that it must then accept responsibility.

Dr. C. H. BOND (Commissioner, Board of Control) confirmed Sir Frederick Willis's account of the attitude of the Board of Control. He related the history of the Committee of Inquiry into the Lunacy Acts in 1884, when the Earl of Shaftesbury was chairman of the Lunacy Commission, and vividly described the distress of the great-hearted Earl, particularly at the suggestion of judicial intervention. Dr. Bond asked whether it were yet too late to relieve the justice of a task for which in most instances he had no taste. If the public really knew this piece of history and the complete absence of cases of wrongful detention, they themselves would give the pendulum a swing in the other direction. He did not think the law should impose on the Board of Control the duty of visiting cases in single care; any visitation should be done by medical members.

Dr. L. V. BRIGGS (Boston, Mass.) described his experiences on the Board of Control in Massachusetts under three different political administrations. The medical societies there had succeeded in educating public opinion by joint meetings and discussions and by belittling the ideas of heredity in mental disease and of the stigma of entering a mental hospital. A review of 28,000 certified cases had shown an hereditary factor in 54 per cent. only. In his State there was a system of six months' parole on release from hospital; during that time the patient could be brought back to the hospital without legal proceedings. The magistrate had a right to see the patient, but exercised it in less than 10 per cent. of cases. In only one instance had damages been awarded against a doctor, and then the judge had intervened, saying that it was against the evidence and against the law.

DONATIONS AND BEQUESTS.—Mr. Henry Peter Hodge, Kettering, left £250 to the Kettering General Hospital and £50 to the Kettering District Nursing Association.—Among other bequests the late Mr. George Edwin Lowe, J.P., of Sutton Coldfield, Warwickshire, left £2000 each to the Princess Alice Orphanage, New Oscott (a branch of the National Children's Home and Orphanage), the Birmingham General Hospital, the Queen's Hospital, Birmingham, and the Devonshire Hospital, Buxton; £1000 each to the Home for Incurables, Leamington, the Women's Hospital, Birmingham, and the Children's Hospital, Birmingham.—The late Mrs. Sarah Wood, of Blackheath, left by will £1000 to the Victoria Cottage Hospital, Maryport, to found a bed; £100 each to St. John's Hospital, Blackheath, the Blackheath and Charlton Cottage Hospital, and the Miller Hospital, Greenwich.—The late Mr. Edmund Thomas Child, of the Temple and Wimbledon, S.W., among other donations, left £1000 each to St. Andrew's Hospital, Dollis Hill, and the Hospital of St. John and St. Elizabeth, Grove End-road; £100 each to North Wimbledon Hospital, the South Wimbledon Hospital, and the Central Home for the Poor Mentally Defective Children, Worcester.

BRITISH MEDICAL ASSOCIATION.

ANNUAL MEETING AT EDINBURGH.

(*Continued from p. 235.*)

SECTION OF MEDICINE.

WEDNESDAY, JULY 20TH.

Prof. G. LOVELL GULLAND (Edinburgh) presided at the first session of this Section when Prof. H. MACLEAN (London) opened a discussion on the

RESULTS OF INSULIN THERAPY IN DIABETES MELLITUS.

The four years which had elapsed since insulin was introduced were sufficient, he said, to show its influence on the disease. Insulin, which was essential for the correct use of sugar and fat, could be supplied in adequate amounts, and the chief difficulty in treatment arose in balancing the diet and the insulin. Much had been learnt in the past about the value of dietetic restrictions in the treatment of diabetes but the results had been disappointing. Although the patient lost all symptoms of the disease and did well to begin with, after two to four years a deterioration took place and death usually occurred as a result of coma or some intercurrent disease. The so-called diabetes in elderly subjects often presented a different picture from that occurring in young people, as glycosuria was the only symptom and ketosis rarely occurred. He did not think that this condition was true diabetes but a simple glycosuria, dependent on an inability to store sugar in the normal manner in the liver and muscles. Such glycosuria often did no harm though the condition sometimes developed into a true diabetes. Dietetic treatment worked admirably with this type of patient, whereas without insulin the true diabetic rarely lived more than four to six years.

Since insulin had been used, 291 patients had been treated in the Medical Unit at St. Thomas's Hospital. All these showed a definite ketosis and the majority were young or middle aged. Cases with ordinary glycosuria without ketosis were not included. Every patient had been first treated as an in-patient and afterwards watched in the out-patient department.

Year.	Admitted.	Deaths to date.
1923–24	77	5
1924–25	76	2
1925–26	68	3
1926–27	70	2
Total	291	12

Several of these patients were admitted in coma; a number developed coma, three of them on two occasions; all these were now doing well. Two patients with tubercle bacilli in the sputum were still alive and in fairly good health. Of the 12 deaths, one girl of 19 developed coma outside and was treated by her own doctor; another was admitted at a late stage; three recovered from coma but died of heart failure. In all the others coma developed as the result of some such complication as influenza, pneumonia, or a septic lesion. The death-rate was nearly 4 per cent., which was an extraordinary improvement over the results of dietetic treatment. It was probable that of the 77 patients admitted in 1923–24 no less than 38 would have died; whereas, with insulin 72 were alive and well. Only one patient had been seen who did not respond to insulin, and as an autopsy was not allowed it was not possible to say that no other complication was present. These figures showed that the disease had been shorn of many of its terrors and it ought to be possible to control any uncomplicated diabetes and to restore the patient to a fair degree of comfort.

There were, however, Prof. MacLean admitted, some difficulties in the treatment. An acute illness caused the insulin to lose its effect and the dose must be considerably increased. Very often the medical man took the view that some complication which made the patient unable to take the usual diet indicated a decrease in the dose of insulin. Such treatment was often fatal as the dose of insulin should be increased at an early stage of the complication. If this was done the grave consequences could often be avoided. The results with children were, on the whole, good, as 30 children under the age of 10 had been treated in four years and they were all alive and in good health. The hopes of a real cure occurring in children had not been fulfilled as the insulin could not be abandoned although it had been reduced in some cases. Elderly persons responded to insulin equally well and symptoms such as weakness or neuritis improved. Insulin was of the utmost service when an operation was necessary; with insulin a diabetic had about as good a chance under the knife as a normal person. The mortality statistics were not so good as would have been expected as there had been no diminution in the number of deaths due to diabetes. This might be due to the fact that the incidence of diabetes had largely increased and that without insulin the deaths would be much greater. The examination of the tables showed that the age-incidence had shifted and that the majority of deaths occurred in elderly persons. These had probably died from another disease.

The results with comatose patients were very striking, but much depended on the quickness and energy of the medical attendant. If treated early recovery should be the rule, especially if the patient was young and otherwise healthy. The use of alkali in coma was contra-indicated, as Goldblatt had shown that a dose of alkali prolonged the state of ketosis produced in a healthy adult by carbohydrate starvation. Although it was better to aim at keeping the urine sugar-free and the blood-sugar normal many patients did very well even though glycosuria existed. He deprecated giving insulin more than twice a day because of the effect on the mentality of the patient. Once the patient knew how to estimate his diet it was unnecessary to weigh every meal. None of the pancreatic mouth preparations on the market had, he said, the slightest effect on the disease. Synthalin, the newest synthetic product, did produce some effect in certain cases, and it was conceivable that some effective synthetic preparation would be discovered. Meanwhile, the view must be accepted that insulin was the only useful substance in the treatment of diabetes.

Prof. PETRÉN (Lund, Sweden) said it was too early for him to draw general conclusions as the total number of cases was too small. He had, however, analysed the figures for patients admitted in coma.

Admitted in coma		57
Recovered		42
Died in coma	in hospital	4
	at home	4
Died at home of other diseases		7

These figures were very satisfactory and were very similar to those of Joslin. He thought that an intravenous injection of dextrose at the outset of treatment was bad practice. The diet which he used subsequently was one low in protein and the carbohydrate in which did not exceed 50 g. He had been struck by the mortality figures for Holland; below the age of 50 there was a decrease in the number of deaths, from 50 to 65 there was no change, above 65 there was an increase.

Dr. R. D. LAWRENCE (London) said that the properly treated diabetic patient was so well that no one would know he had diabetes unless he was seen taking his food or an injection. Failure was due to the following causes: 1. The presence of another disease; he had seen three patients with carcinoma of the pancreas. 2. Coma—of the comatose patients, six had died out of 24; these deaths he ascribed to circulatory failure and he gave small doses of adrenalin to aid the heart. 3. Resistance—he had only seen one person who was insulin-resistant; he required 400 units a day to keep the urine sugar-free. All the pancreatic extracts on the market were useless. He

disagreed with Prof. MacLean as he considered that no real distinction could be made between the diabetes occurring in old people and that in young adults. The difference was only one of degree; the condition in elderly people should be treated efficiently.

Dr. P. J. CAMMIDGE (London) divided cases into three groups: (1) those with defective utilisation and defective storage; (2) those with defective storage only; and (3) those with a low renal threshold but no other defect. The mortality in the first group had been decreased from 49 to 20 per cent. by the use of insulin; in the second group from 9 to 4 per cent., while there were no deaths in the third group. Death was always due to another disease. He had used a dry preparation in a few cases along with insulin and thought that it had helped a little.

Dr. O. LEYTON (London) had only known two insulin-resistant patients. One was still alive and fairly well, but the other had died in coma in spite of large doses of insulin and no septic disease had been found at the autopsy. In only one case had a true recovery taken place. He thought that the blood-sugar should always be kept below 0·15 per cent. He had analysed 325 cases; of these, 6 per cent. had died; 27 had increased the dose of insulin; 35 had kept the insulin the same; 26 had decreased the insulin; 2 had given up insulin; 33 had increased the diet; and 5 per cent. had decreased the diet.

Prof. D. MURRAY LYON (Edinburgh) said he gave insulin to patients for the following reasons: If a severe ketosis persisted, if severe emaciation was present, if the limit of carbohydrate tolerance was too low to support life in comfort, if the urine contained sugar in spite of careful dieting. He thought that if the disease was properly treated it was not progressive. Recovery took place in one case where the insulin had been decreased from 170 units to nil and the patient had kept well for 15 months. The causes of a fall in tolerance were as follows: (1) omission of insulin, (2) carelessness in the diet, (3) emotional disturbance, (4) toxæmia of some kind, (5) lack of the usual exercise. He thought that the urine should always be kept free from sugar and that three doses of insulin should be given if necessary. He disagreed with Prof. MacLean in the distinction he had drawn between the glycosuria of elderly persons and young adults.

Prof. L. BLUM (Strasbourg) said his early results with coma had not been so good as his recent ones. He had now increased the dose of insulin considerably and gave it half-hourly if necessary. The urine was examined at frequent intervals and if sugar was present another dose was given. When no sugar was present, estimation of the blood-sugar was advisable, but changes in the patient's condition were often a guide to the correct dosage when he had become conscious. He disagreed with Prof. MacLean about the toxic action of alkalis, as he had found that the cells of the cerebral cortex of comatose patients contained much less sodium than those of healthy persons; alkali should therefore always be given to comatose patients.

Dr. G. GRAHAM (London) said that the tables for England and Wales showed a steady rise in mortality from diabetes since 1900, broken only from 1917–19, when strict rationing caused a decrease, mainly in patients over 50. Since the introduction of insulin there had been a slight decrease in male mortality, but female mortality was actually higher than ever. An analysis of age-groups showed a big decrease in all decades under 50, undoubtedly due to insulin, but in the 50–60 group male deaths had only decreased slightly while female had increased, and after 60 both had increased considerably. The increase after 60 was partly due to other diseases, but also to the belief that after that age diabetes was a mild condition which required little treatment. He believed that the condition was essentially the same as that in young people but developed more slowly. It should be treated drastically as considerable recovery might take place. As a proof of the healthy condition of insulin patients, he instanced two girls who had begun to menstruate normally and four women who had suffered little harm from a pregnancy although this was always an added danger. He did not think alkalis did harm to comatose patients; in this condition if a blood-sugar estimation could not be made he always gave a dose of 50 g. dextrose.

Dr. C. G. LAMBIE (Edinburgh) said that diabetes in elderly people showed certain differences; insulin had a much greater effect on the sugar and little disturbance took place when insulin was stopped. In them the respiratory quotient was normal. He thought that the diffusion of glucose into the cells must be different, especially as the symptoms associated with hypoglycæmia in young adults occurred when the blood-sugar was still high. The difference might be explained by the presence in the elderly person of a substance which countered insulin. These patients should be prevented from passing sugar either by diet or by insulin.

Dr. F. M. SMITH (Harrogate) spoke of psychoneuroses playing a part in hindering full recovery.

Prof. MACLEAN replied briefly. Elderly persons, he said, should certainly be treated properly whatever views were held as to the condition at their age. Alkalis did no harm to comatose patients in small doses.

THURSDAY, JULY 21ST.

At the second session a discussion on the

TREATMENT OF ACUTE LOBAR PNEUMONIA

was opened by Prof. JOHN HAY (Liverpool). Pneumonia, he said, killed 36,990 persons in England and Wales in 1925, the mortality being approximately 20 per cent. It was admittedly an infection in which the causal organism was the pneumococcus, either alone or in combination with other organisms, the primary site of infection being in the lungs. The outlook depended on the virulence and type of infection and the resistance of the patient.

Type.	Incidence in adults—	Mortality per cent.
1	nearly one-third	25
2	„ one-quarter	33
3	„ one-tenth	50
4	more than one-quarter	10

Out of 100 cases 75 would probably survive, 10 to 15 would probably die, leaving 10 to 15 in which correct treatment and good nursing might turn the scale.

As regards prophylaxis, patients nursed in a general ward should be screened off, sputum and clothing disinfected. Every nurse should be taught to hold a sheet of paper or gauze between the patient's face and the doctor's. Gargling with an antiseptic was advisable for those in attendance. Prophylactic injection of large doses of pneumococci had proved useful in the mines of South Africa in diminishing both incidence and mortality. Such protection was certainly advisable in the case of those nursing or treating pneumonia. The presence of anxious relatives made it difficult for the doctor to maintain a cool and balanced judgment; the tendency therefore was to do too much. The common cause of death in uncomplicated pneumonia was cardiac failure, the three important factors in its causation being (1) toxæmia, (2) anoxæmia, (3) stress on the right heart.

The main essentials of effective treatment were fresh air and complete rest. A fire, but no fug. No gamgee jacket but light loose clothing, opening down the front. Every unnecessary movement was to be avoided. Tepid sponging made the patient more comfortable. Plenty of fluid and fluid only should be given during the first 48 hours—water, glucose lemonade, fruit juice, and diluted milk; also tea or coffee, but not late in the day. Later, lightly boiled eggs and biscuits but not soups. At the onset calomel or salines should be given, and if necessary a simple enema. Distension of the abdomen should be watched for; it might be a grave complication by hampering the action of the diaphragm. If it occurred milk should be stopped, an enema given or a rectal tube inserted, and if necessary pituitrin injected.

About specific treatment there was considerable difference of opinion. His personal attitude toward the therapeutic value of vaccines in pneumonia was frankly critical. All the advocates of it stressed the importance of vaccination within the first three days. Captain Malone's paper, published in 1925, seemed to justify the conclusion that early vaccination proved effective in lessening the duration of the fever and accelerating the crisis. Type 1 serum appeared to be useful in Type 1 pneumonia if injected intravenously in doses of 100 c.cm. every eight hours.

Meanwhile symptoms were to be treated. Pain was incompatible with rest and must be mitigated. Strapping might be all that was required, or a mustard poultice or ice-bag might be effective. So long as the air passages were dry, morphine or other opiate, such as Dover's powder or omnopon, might be given. Insomnia was to be combated early with an ounce of whisky or brandy or paraldehyde ʒii. After the fifth day opium should be given very cautiously, especially if there was much secretion in the bronchi. From the first the measures should be directed towards the prevention and treatment of cardiac failure. Vasomotor tone was to be maintained by hydrotherapy. The depth of respiration could be increased by cool fresh air and the relief of pain. Toxæmia was met by specific treatment and by attention to the intake of fluids and elimination by bowel and kidneys. Oxygen was to be administered at the first indication of cyanosis; it was probably the best cardiac stimulant. The funnel method was futile. More efficient was the nasal catheter, the opposite nostril being blocked with cotton-wool; better still was the mask, but patients would rarely tolerate anything applied over nose and mouth. Barach had described a glass nose-piece and an oxygen tent. Digitalis had been shown to have a favourable action on the contractile power of the heart, quite apart from controlling its rate. Its routine use was of value, 45 to 60 ♏ of tincture being given from the start. If fibrillation occurred and if no member of the digitalis group had already been given, there should be no hesitation in injecting strophanthin intravenously.

No scientific evidence had been advanced in favour of the view that alcohol was a direct cardiac stimulant. In a series of 150 cases the mortality of those treated with alcohol was 15 per cent. greater than in those in which alcohol was not used. He was convinced, Prof. Hay said, that the prognosis in any particular patient was rendered graver by repeated doses of alcohol administered to prevent or to counteract cardiac failure. Alcohol was only of use to pneumonic patients under certain well-defined conditions, such as sleeplessness. Alcohol had indeed been shown to inhibit the immunising process upon which recovery depended. Glucose might be given by mouth or intravenously. Pituitrin was indicated if the blood pressure fell. Caffeine was a direct cardiac stimulant. Strychnine was very widely employed but its reputation exceeded its merits. Engorged jugulars, an increase of cardiac dullness to the right, and marked cyanosis justified venesection, but the relief afforded was only temporary. In practice the wise physician used few drugs.

Prof. W. H. WYNN (Birmingham) described some remarkable results of treatment with vaccines. These were best made of fresh cultures of virulent organisms. The first dose for an adult should be at least 100 million. Failing fresh cultures a stock vaccine could be used. If injected in the first 24 hours the patient's temperature dropped and general improvement occurred. The earlier the injection the more sure was the result. He showed lantern slides illustrating the almost uniform fall in temperature and in mortality-rate as a result of vaccine treatment.

Dr. H. MORLEY FLETCHER (London) emphasised the importance of keeping the patient quiet without repeated examinations. He advised giving digitalis, preferably as the tincture, as soon as the diagnosis was made. He quoted Dr. Armstrong's work for the Medical Research Council on the action of sodium nucleinate in pneumonia, in which no evidence was obtained that the immunity reaction was influenced by such injections. Dr. Fletcher had made clinical observations not only in lobar pneumonia but also in other acute infections with a low or moderate leucocyte count. The results were practically negative both as regards leucocytosis or benefit to the patient. Oxygen was of great utility but must be given early, systematically, and in sufficient quantity, when it calmed delirium and promoted sleep. The most useful method was the nasal tube.

Prof. R. J. S. MCDOWALL (London) spoke of the relief of high venous pressure by bleeding. He was of the opinion that when alcohol did have any good effect it was by lowering the venous pressure. Shallow respiration was the chief cause of anoxæmia.

Dr. L. S. P. DAVIDSON (Edinburgh) said he was convinced of the value of serum treatment and of prophylactic injections. A bad outlook must be expected if the sputum gave a pure culture of pneumococci. The worst cases gave a positive blood culture late in the disease.

Sir JAMES BARR (Liverpool) spoke of the importance of the heart in prognosis.

Dr. A. F. HEWAT (Edinburgh) regarded alcohol as essential in the treatment of all cases. The value of oxygen was also undoubted.

Dr. F. M. GARDNER-MEDWIN (St. Asaph) said that if sodium bicarbonate and glucose lemonade were given along with sodium nucleinate a crisis was initiated within 48 hours in nearly all cases.

Dr. D. H. BALLON (Montreal) showed an instructive series of X rays of the chest before and after lipiodol, illustrating its aid in the diagnosis of cavities and in the classification of types of bronchiectasis.

FRIDAY, JULY 22ND.

Dr. R. A. FLEMING (Edinburgh) took the chair at the third session, when a discussion on the

PATHOLOGY AND TREATMENT OF PERNICIOUS ANÆMIA

was opened by the President, Prof. G. LOVELL GULLAND. The clinical picture of the disease, he said, was well established; its variations depended on the acuteness and severity of the attack and on the part of the body affected. A blood count was necessary for diagnosis; the principal criteria were a high colour-index, the presence of megalocytes (with or without megaloblasts), and a leucopenia. The platelets were reduced in number but increased in size. The high colour-index was due to the production in the bone-marrow of megaloblasts instead of normoblasts as the result of a toxæmia which affected the blood and marrow. This toxæmia was prone to occur in certain classes of people, more especially those in middle age and those who had a hereditary weakness of the bone-marrow. The toxin was still unknown but certain facts about it were established. Thus it was slow in its action, and gradually cumulative until its maximal effect was produced. The patient as a rule recovered from the first attack either because the toxin was exhausted or because a relative immunity was produced. The process was repeated one or more times. The toxin was regarded as hæmolytic but it was probable that both the circulating red cells and those in the bone-marrow were poisoned and rendered a more ready prey to the ordinary phagocytic processes occurring in the bone-marrow, spleen, hæmolymph glands, liver, and elsewhere. The neutrophil series of leucocytes were also affected as these often did not exceed 4000 per c.mm. even when a septic condition was present. Other changes due to the toxin were sclerosis of the cord, necrotic areas in the liver, together with punctate basophilia of the red cells.

The organism which produced the toxin was not known as the blood culture was always sterile and no organism was seen in a stained blood film. A hæmolytic streptococcus had been suspected, but the changes in the bone-marrow were quite unlike those occurring with the known streptococcal infections. The same argument applied with still greater force to the colon

bacillus. Recent experiments by Moench, Kahn, and Torrey had suggested that the presence of *B. welchii* in the intestinal contents caused the condition. The stools of 33 patients contained more of this organism than those of the controls, but the bacilli were not more potent in causing hæmolysis than those of the controls. If *B. welchii* was in fact the cause the wall of the intestine must be more permeable than usual. Kahn and Torrey had damaged the wall of the stomach of monkeys and after feeding with cultures of *B. welchii* had seen the development of an anæmia similar to pernicious anæmia. This work was suggestive but needed to be confirmed. The evidence in favour of a spirochæte or protozoon was not good. It had been suggested that the hæmolysis was due to a deficiency in cholesterol in the blood. Cholesterol when present in normal amounts presumably kept the hæmolytic unsaturated fatty acids in check; if the cholesterol was reduced in amount, hæmolysis might occur. The cause of the decrease in cholesterol was quite unknown. A more important point was the achylia, which was practically constant. Pernicious anæmia had developed in patients who had had achylia for many years and achylia was often present in the relatives of patients with pernicious anæmia. On the other hand, achylia frequently occurred in normal people and in many debilitating conditions. Achylia would cause a change in the intestinal flora, but to establish a causal relation the change in the flora should be present before the pernicious anæmia developed, for otherwise the changes in the flora might be due to the anæmia. Although the cause of the cryptogenic or idiopathic pernicious anæmia was not known there were other large groups in which the cause had been established. In bothriocephalus anæmia a cure followed the removal of the worm. The condition in horses was due to infestation of the gastric mucosa with the larvæ of certain flies. It also sometimes occurred in the course of sprue, malaria, syphilis, pregnancy, and over-radiation with X rays. Thus there were many conditions, known and unknown, which could produce a megaloblastic anæmia.

Treatment was unsatisfactory from the point of view of ultimate cure, but nearly 100 per cent. recovered from the first attack and the great majority from the second. It was in the later relapses that the real difficulty occurred. Rest, fresh air, cheerful surroundings, general tonic measures were as important as in any other toxic condition. The diet must be regulated by the alimentary condition and varied between a full diet and peptonised milk. Minot and Murphy had used a rich liver diet, but his experience with this was limited; several patients had done well but others had not tolerated the diet. It was very important to regulate the bowels and colon lavage was often of benefit. Hydrochloric acid was used as a routine measure, for in medium doses it helped the appetite, but he had not found that the large doses advocated by Hurst were well tolerated. Arsenic was the standby; it was best given as the hydrochloric acid solution by mouth, the dose being gradually increased until the limit of tolerance was reached, and then maintained until the colour-index fell below unity. Iron should then be substituted. Organic preparations of arsenic had been of little use in his hands. Blood transfusion was not curative but might be of great service in helping a patient round a critical corner when the vitality was exhausted by the toxæmia. Splenectomy was advocated but he had never advised it. So much attention was now being focused on the disease that we might surely hope for advance; for himself he expected it from the side of the chemist or the bacteriologist rather than of the clinician.

Prof. W. K. HUNTER (Glasgow) said that there were two marked groups of pathological change, those in the liver and those in the bone-marrow. The net result was a hæmolysis of the red cells produced in the abnormal bone-marrow. Other points of importance were the family predisposition and the presence of an infection of some sort.

An important paper on the Treatment of Pernicious Anæmia with a Diet Rich in Liver, by Prof. G. R. MINOT (Boston, Mass.), was read by Dr. G. D. MATHEWSON. This diet consisted of 5 to 9 oz. of liver together with some red meat, a small amount of fat, and a reduced carbohydrate ration. In the last three and a half years 125 patients had been thus treated, the blood count rising to 4–4½ millions. The first sign of recovery was a rise in the number of reticulated red cells. These increased from the normal 1 per cent. to 20–30 after six days, remained high for about ten days, and then fell again to normal. The colour-index fell to less than unity, and the yellow colour of the skin and bilirubin in the blood disappeared, the average diameter of the cells becoming normal. Of the 125 patients, 60 had been treated for one year and their average cell count was 4·5 millions; 18 for two years and the average count was 4·6 millions; and three for three years and the average count was 4·8 millions. The achylia persisted in the 20 cases examined. The liver should be eaten either cooked or raw; it should not be boiled for a long time; it could be taken as liver pulp in 5-oz. doses twice a day. There was little difficulty in persuading the patients to continue the diet, as they felt so much better. The exact dose required after recovery was as yet unsettled. Some patients kept well on 5 oz. three times a week. An extract had been prepared which contained nitrogen in a non-protein form. The experiments with this were proceeding and were promising.

Prof. H. VAN DEN BERGH (Utrecht) said that complete absence of hydrochloric acid was most important in the diagnosis, as was poikilocytosis, which he had only found in one healthy patient and in records of two others. He held that the hæmolysis was the basic pathological fact and that the blood destruction took place in the spleen, as no free hæmoglobin was ever found in the plasma. He thought that the real cause was probably a protozoal infection.

Prof. KNUD FABER (Copenhagen) said that he had seen typical pernicious anæmia develop after a stricture of the ileum and with sprue, which had arisen in Denmark as well as abroad. In the idiopathic type achylia was constant and the intestinal flora was changed. He had known the disease to follow gastrectomy, but the fact that achylia was often present in patients who never had any symptoms was difficult to explain. Similarly many patients with bothriocephalus never showed any signs of anæmia. He had seen some patients recover after taking liver, and it would be most interesting to see if the anæmia of bothriocephalus and sprue would also improve.

Dr. A. F. HURST (London) gave figures to show the effect of achylia in causing the incidence of pernicious (Addison's) anæmia. He had known the disease follow achylia due to alcoholic gastritis, also in two cases of cancer. In the latter condition he thought the patients rarely lived long enough for the condition to develop. Dr. F. A. Knott had examined the duodenal contents of 37 cases and had found a hæmolytic streptococcus in 97 per cent., *B. coli* in 94, a staphylococcus in 40, but never any *B. welchii*. The achylia permitted the infection of the small intestine and made the contents more alkaline. He thought that prophylaxis should be practised and septic teeth removed. Acid should be given to persons with achylia, and it was quite easy to get patients to take 1 drachm in 6 oz. of orangeade or lemonade with their meals.

Dr. L. SCHIFF (Cincinnati) gave figures showing the bilirubin content of the blood in secondary and pernicious anæmia.

Dr. STANLEY DAVIDSON urged the claims of *B. welchii* as the cause of the hæmolysis.

Dr. W. E. COOKE (Wigan) showed pictures of the neutrophil cells in which all the young forms had disappeared and only those with multilobular nuclei remained.

Dr. SALISBURY SHARPE (London) thought that a spirochæte was responsible.

Prof. GULLAND expressed his appreciation of a stimulating discussion which had clarified many obscure points.

SECTION OF MEDICAL SOCIOLOGY.

FRIDAY, JULY 22ND.

THIS Section met under the Presidency of Dr. F. KAY MENZIES (London) to discuss the

FUTURE RELATIONSHIP OF MUNICIPALITIES TO THE VOLUNTARY HOSPITALS.

Mr. H. L. EASON (Guy's Hospital) dealt chiefly with the situation in London and said that the solution of the problem must vary with varying local conditions. The fundamental factor was the education of the medical profession; the teaching hospital must have the power to select for admission every type of case. He went on to enumerate the many forms of treatment at present given at rate-supported and municipal institutions. The Poor-law hospitals gave excellent treatment, but the stigma of pauperism and administrative restrictions as to boundaries were objectionable. There was great need for additional beds in London for surgical cases—e.g., for rapid admission of cancer patients, for orthopædic cases, and for treatment of tonsils and adenoids. But there was not the same need for medical beds.

Coming to concrete proposals, Mr. Eason set himself to answer the questions put by Sir Arthur Robinson, of the Ministry of Health, to the British Hospitals Association. There was no definite line of demarcation, he said, between the types of cases to be treated by voluntary and by municipal hospitals. But as teaching hospitals must admit every type they would have a more rapid turn over and municipal hospitals would have a larger proportion of chronic cases. Each class of hospital must be equally well-equipped and prepared to tackle anything. Specialism had a narrowing effect and was inimical to well-balanced treatment. The shortage of beds was most serious for cancer, and next for orthopædic cases, whilst the shortage for throat beds could not be estimated till the medical profession made up its mind about the indications for tonsillectomy. The teaching hospital would be the "mother" of the group and the medical and nursing staff might be pooled. There would be a free transfer arrangement for patients from one hospital to another and the standard of treatment would be the same. The stigma having gone, the hospital-using public would soon learn there was no essential difference between the voluntary and the municipal hospital. In London the County Council could not possibly undertake the management of 104,000 hospital beds and might hand over the administration of all the hospitals to the present managers of the voluntary hospitals. The present "voluntary" management of institutions for venereal diseases, which were entirely paid for by rates and taxes, formed a precedent.

Mr. M. A. REYNARD (Glasgow Parish Council) began by expressing the opinion that the Poor-law hospitals in Scotland would have reached a higher standard if there had been a good lead from a central authority. Hospital accommodation in remote districts was quite inadequate. Glasgow had three Poor-law hospitals—Stobhill, the largest, had 1700 beds—and all three were used for teaching purposes. Coöperation with the other hospitals was good; for instance, they took in cases of pneumonia for the medical officer of health, post-encephalitics from all Scotland for the Board of Health, and about 40 maternity cases a week. There was no pauper stigma. The Glasgow practice could be applied to Scotland. The needs of remote districts might be met by cottage hospitals linked up with a central hospital by motor ambulances. The parish areas were obsolete; their populations varied from 300 to 596,000, and the small areas must go. The observation wards of the mental hospitals probably provided the most interesting material for teaching purposes. With the extension of the period of observation to six months there was now a 50 per cent. recovery-rate in these wards without certification. Small districts were apt to put individual needs before those of the community; for example, two neighbouring towns had recently each erected a 100-bed hospital, instead of combining to erect one more efficient 200-bed hospital. The Board of Health should say what and where hospitals were needed. Voluntary subscriptions were often not voluntary but extracted. He thought it would be fairer to put all the cost on the rates and assess each area proportionately. Homes for incurables were needed everywhere and, of course, did not require the expensive staffing of a hospital. Every hospital should have its convalescent home. The Glasgow convalescent home at Dunoon, empty for a time at first, was now always full.

Sir HENRY KEITH (Hon. Sheriff-substitute, Lanarkshire) doubted if the time for fusion was ripe. There was a strong trend towards coöperation. Certain types of disease were obviously more suited for rate-paid treatment. State grants were justified for teaching hospitals, as they were doing national work. Facilities for transport favoured small hospitals as much as central large hospitals, because the expert could be transported as easily as the patient. He thought the cost of small hospitals was less. (Several subsequent speakers disagreed with Sir Henry Keith and thought that when efficiency was considered large hospitals were more economical than small.) Scotland had proportionately more voluntary beds than England. Stobhill had lost its Poor-law stigma during the war. He would be inclined to leave the voluntary hospitals alone, meanwhile getting power, as in England, to subsidise with representation on the management, in the event of future financial difficulties. Local authorities could do much by combination at present.

Dr. J. P. KINLOCH (M.O.H., Aberdeen) showed how the problem had been practically solved in Aberdeen. After the war there was one 160-bed Poor-law hospital empty, while the voluntary and municipal hospitals needed beds. The Poor-law authorities had handed over the whole of their hospitals to the municipality and the municipality had handed over the medical staffing of these hospitals to the medical faculty of the university. The municipal and voluntary hospitals were complementary and not rivals. It did not matter to the medical profession who did the management as long as it was efficient. Voluntary hospitals could not provide heart, tuberculosis, and orthopædic schemes. Aberdeen encourages the voluntary hospitals. The various types of hospitals were pooled for the training of nurses.

Dr. H. B. BRACKENBURY (London) thought there was a danger of encroachment on the province of the general practitioner and the panel doctor by the hospitals and municipal authorities and that the shortage of beds was exaggerated.

Sir NORMAN WALKER (Edinburgh) agreed very largely with Mr. Eason and Mr. Reynard. As the result of a tour in Scotland he judged there was much coöperation in progress, both legal and illegal. The interests of patient and of teaching hospital were the same. Adequate provision for incurable cases was a crying need. The pooling of medical staffs, without legislation, would go a long way towards solving the problem. Small, medium-sized, and large hospitals must be linked up.

Dr. DRUMMOND SHIELS, M.P., remarked on the agreement between the speakers. The public liked the voluntary system, but did not like flag days and stunts. The voluntary system was being eaten into by semi-compulsory levies and payments which were not very different from rates. The difference between the two methods at present was more sentimental than real. His preference was for municipal hospitals.

Dr. A. S. M. MACGREGOR (M.O.H., Glasgow) believed that the provision of additional hospital beds tended

to meet the needs of the general practitioner rather than to constitute an encroachment on his work. He thought the control of the Poor-law hospitals taken over by voluntary bodies would be a difficult matter.

Dr. STELLA CHURCHILL (London) deprecated the establishment of special hospitals and thought the ideal should be to have all the specialties in departments of the general hospitals. She mentioned that an appeal had recently been issued for £100,000 for a new special hospital in London.

Dr. ARTHUR MANKNELL (Bradford) said the Bradford health committee had leased St. Luke's Hospital from the guardians. It still acted as a Poor-law hospital, but he thought there was a tendency to hurry home the Poor-law and panel patients and to develop St. Luke's as an A1 general hospital in rivalry with the voluntary hospital. The voluntary system was not by any means dead in Bradford.

Mr. EASON, in his reply, said there could be no stereotyped line of development for every part of the country. In London the question was, Would the County Council tackle the business or leave it to experienced hospital administrators? The teaching of the students was fundamental and there must be freedom of thought and liberty of teaching.

Mr. REYNARD said that large hospitals were just as economical as small and much more efficient. The pooling of medical staffs had been accomplished in Glasgow.

Reviews and Notices of Books.

GENETIC STUDIES OF GENIUS.

Mental and Physical Traits of a Thousand Gifted Children. Second edition. By L. M. TERMAN and Others. London: Harrap and Co. 1926. Pp. 648. 21*s*.

The Early Mental Traits of Three Hundred Geniuses. By C. M. COX and Others. Same publishers. 1926. Pp. 842. 21*s*.

THESE two massive volumes are the first fruits of an inquiry into the constitution and characters of genius which has been organised by Prof. Terman of Stanford University with the aid of the Commonwealth Fund left by Mrs. Harkness. Of the importance of understanding genius there can be no question, and we have here a serious and sincere attempt at the quantitative study of some of its aspects.

The first volume deals with the characters of about 1000 "gifted" children selected by various progressive tests from many thousands of their schoolfellows, of whom they form a good deal less than 1 per cent. at each age. They are compared throughout with a random sample of similar unselected children, and the "intelligence quotient (IQ)" is used as a measure of their giftedness. The results are set out in sufficient detail for criticism. We can note here only some of the conclusions which are reached. The most gifted children fall outside the normal curve—i.e., they are not simply extremes of the normal variation, but represent something which is either qualitatively different or so greatly differing in quantity that it comes to the same thing. The gifted group contains a preponderance of boys and a marked excess of Jewish and Northern and Western European stock, and is drawn more from the higher than the lower occupational levels. In physical growth and general health the gifted group is distinctly above the average. Giftedness usually appears at a very early age, and is general rather than special in its scope. The most intelligent children read more and sleep more than the average, whom they also surpass in tests of honesty, trustworthiness, and similar moral traits; they show no deficiency in play interests. Some of the conclusions are in accordance with "general opinion," some are quite in contradiction. It is important to note that they are derived from the study of facts observed on a large scale with such quantitative accuracy as is at present available. It should also be remembered that they are statistical—i.e., they apply to the general mass of gifted children and not to each individual gifted child. As a whole they carry the distinct implication that nature is more important than nurture.

In parallel with this study of the Californian child of to-day, Dr. Catharine Cox and her assistants have worried out the early history of 300 eminent men, and have endeavoured to evaluate their childhood intelligence from the available biographical material. The ground is obviously rather insecure, but the tale she has to tell is of exceptional interest. And she derives the important conclusion that the extraordinary genius is also the gifted individual who may be discovered in childhood by intelligence tests. That all gifted children do not achieve high eminence is explained by the further deduction from her collection of case histories that geniuses who come to adult fruition are characterised not only by great intelligence in their youth but by persistence of motive and effort, confidence in their abilities and great strength of character. It means something, therefore, when Galton writes to his sister: "I am 4 years old and can read any English book. I can say all the Latin Substantives and Adjectives and active verbs besides 52 lines of Latin poetry," or when John Stuart Mill reads Plato at 7 and writes a history of Rome. If the conclusions of this book can be widely dispersed, such precocious monsters may perhaps get rather more sympathetic treatment than they are apt to have.

CLINICAL PEDIATRICS.

Edited by R. S. HAYNES, M.D., Clinical Professor of Diseases of Children, Columbia University, New York. Vols. VI.–X. London and New York: D. Appleton and Co. 1927. 16*s*. per volume.

THE first five volumes of this admirable system of pediatrics received notice in THE LANCET of Jan. 8th. The high standard of their predecessors has been well maintained by the five volumes which have now appeared, and which deal principally with disease in children of the pre-school and school ages. Vol. VI., by Prof. Willis Campbell, and Vol. VII., by Prof. J. A. Foote, are entitled Orthopædics of Childhood and Diseases of Bones, Joints, Muscles, and Tendons. These two volumes are to a large extent complementary to each other, and their contents are not altogether indicated by their titles. Vol. VI. contains an excellent account of orthopædic procedures in childhood, and also describes diseases of bones and joints from a surgical point of view, special attention being paid to the differences between the growing tissues of the child and those of the adult, and to the methods of preventing deformities in bony disease. Vol. VII. is written from the standpoint of the physician, and is devoted mainly to the constitutional and infective disorders of the organs of locomotion. Rickets and congenital syphilis receive due attention, and are particularly well illustrated by radiograms. In a chapter on heliotherapy, natural and artificial, the indications for the various types of apparatus are discussed. Vol. VIII., on the Digestive System, by Prof. F. C. Neff, is written in greater detail than those referred to above, and includes disturbances in infancy. Questions of ætiology and treatment of obscure conditions such as cyclic vomiting and cœliac disease are presented in a critical and well-balanced manner; the author reserves judgment also on the path of infection in pneumococcal peritonitis. In Vol. IX. Profs. W. L. Funkhouser and R. G. McAliley deal with diseases of the respiratory system. The account which they give of lobar and broncho-pneumonia is admirable, the difficulties presented by atypical cases being extremely well indicated. Empyema is treated rather shortly; all methods of evacuation are regarded as surgical and excluded from the account, and no reference is made to the distinction between syn- and meta-

pneumonic varieties. In the chapter on tuberculosis the preponderance of primary foci in the lungs at all ages is emphasised. Vol. X., by Prof. L. T. Royster, is concerned with the physiology of growth in normal children, and also with the pathology of malnutrition. The last chapters deal with nutritional and deficiency diseases, which leads to some overlapping with other volumes, as rickets and scurvy are included. An interesting chapter on acrodynia owes its presence in this volume to the author's view that this condition is a variant of pellagra rather than a toxic polyneuritis. These volumes are as attractive in appearance and as well illustrated as those of the first series. The practitioner, for whom it is primarily intended, will find in this system of pediatrics valuable help.

AIDS TO TROPICAL MEDICINE.

Third edition. By C. E. BROOKE, M.A., L.R.C.P. Edin., D.P.H., F.R.G.S., Chief Medical Officer, Singapore. London: Baillière, Tindall and Cox. 1927. Pp. 228. 4*s.* 6*d.*

BOOKS as handy and practical as this one are welcomed by workers in the tropics who require a ready and concise source of reference to supplement the larger text-books on tropical medicine. It is therefore unfortunate that it has several important defects. For example, some of the figures in the text are bad, and others inaccurate. The sections on treatment—as, for instance, of kala-azar—are inadequate even as a rough guide, and require amplification at the expense of history and pathology. It is necessary to point out that the treatment of paragonomiasis is not identical with that of bilharziasis. The proportion of space allotted to each subject is not always judicious. The classification of flies, mosquitoes, and even rats (to which 15 pages are devoted) is given in full, while that important parasite, *Filaria volvulus*, is entirely neglected. The terms diathermasia (page 49) and phoebism (page 151), which the author has coined for heatstroke and sunstroke, are inappropriate in a book of this nature, and the statement that *Bacillus coli communis* is responsible for "sporadic dysentery" is hardly accurate. The fact that so many workers in the tropics find this volume of the Aid Series useful makes it important that in a future edition these points should be considered.

PRACTICAL TROPICAL SANITATION.

Second edition. By E. P. MINETT, M.D., D.P.H., D.T.M. and H., Lecturer on Hygiene to the University of Hong-Kong; and A. G. M. SEVERN, M.A., M.D., D.P.H., Medical Officer of Health, Hong-Kong. School Notes by Mrs. MINETT, M.D., B.S., D.P.H., Assistant Medical Officer for Schools, Hong-Kong. London: Baillière, Tindall and Cox. 1927. Pp. 180. 5*s.*

THIS small manual is written as a pocket book for sanitary inspectors and others in tropical countries, and fulfils a useful purpose. The arrangement of the subject matter is simple; the manual deals with personal hygiene, water supplies, sewage and refuse disposal, food markets, abattoirs, mosquitoes, tropical diseases, buildings and construction, port sanitary work, disinfection, education regulations, and, finally, schools.

The information given is clear, accurate, and concise, while the illustrations and diagrams are excellent. The book deserves praise as a model of its kind, and is likely to be well received.

TEXT-BOOK OF BIOLOGICAL CHEMISTRY.

By JAMES B. SUMNER, Ph.D., Assistant Professor of Biological Chemistry, Cornell University, Ithaca, New York. New York: The Macmillan Company. 1927. Pp. 283. 15*s.*

THIS book provides a most interesting account of the general principles of biological chemistry. In an introduction the author summarises the aims and methods of the biological chemist, and points out their importance not only in medicine, but in clinical analysis, dietetics, bacteriology, and other fields. Biochemical reactions are explained, and an outline of the most important literature is given for the guidance of the elementary student. The book is divided into seven chapters, of which the first two contain fairly full descriptions of the fats and carbohydrates. Chapter III. summarises the question of acidosis. The proteins are dealt with in the next chapter, which includes accounts of the composition and general properties of these bodies. The tests for proteins are enumerated and described, and an account of the synthesis of polypeptides is given. Vitamins and the energy requirement are then explained, and in Chapter VII. urine constituents and their metabolism are dealt with in some detail. Then follow sections on the blood and respiration, physiological detoxications, enzymes, and the physical chemistry of protoplasm.

This small volume should be of great value to the elementary student. It is not intended as a book of reference, but forms an interesting summary of the principal facts and theories of biological chemistry.

Reports and Analytical Records.

LACTREX: KING'S COMPOUND MALTED MILK FOOD.

(GEORGE KING AND CO., LTD., ALBION FOOD MILLS, SYCAMORE-STREET, E.C.1.)

Lactrex claims to be a starch-free food for infants from birth and for invalids. When analysed the following results were obtained:—

Moisture	3·54	per cent.
Ash	4·78	,,
Fat	19·00	,,
Protein	18·40	,,
Cane sugar	8·30	,,
Other carbohydrates including maltose, lactose, dextrin, and dextrose	46·00	,,

Starch was tested for with negative results. The reaction was slightly alkaline. The percentage of full-fatted dried-milk deduced from the fat content of the sample was 73, the balance consisting of malt extract and whey solids. When made up with water in the proportions directed the fat content approximates closely that found in cow's milk.

Lactrex is a well-prepared food and pleasant to the palate. The fat content, freedom from starch, and ready miscibility with water are undoubtedly points in favour of the use of this food for infants.

BUCKFAST TONIC WINE.

(MADE BY BENEDICTINE MONKS AT BUCKFAST ABBEY. SOLE DISTRIBUTING AGENTS: J. CHANDLER AND CO. (BUCKFAST, LTD.), 41–42, PARLIAMENT-STREET, S.W. 1.)

It is claimed that the wine is made from the choicest and finest of natural tonic wines to which are added medicinal ingredients of a health restoring and therapeutic character. It is indicated for the treatment of anæmia, nervous exhaustion, and debility. On analysis the following results were obtained:—

Alcohol by volume	15	per cent.
Equivalent to proof spirit	26	,,
Total acidity as tartaric acid	0·26	,,
Volatile acidity as acetic acid	0·01	,,
Total extract	23·26	,,
Consisting of—		
Invert sugar	21·3	,,
Mineral matter	1·25	,,
Protein	0·34	,,

From these results it will be seen that Buckfast Tonic Wine is of the port type with rather less alcohol and considerably more sugar than is usual. The protein, if calculated to meat extractives, would be equivalent to 0·5 per cent. The wine possesses a good palate and is free from preservatives.

THE LANCET.

LONDON: SATURDAY, AUGUST 6, 1927.

THE BRITISH-AMERICAN NEUROLOGICAL MEETING.

LAST week the American Neurological Association and the Section of Neurology of the Royal Society of Medicine held a joint meeting in London, and the event deserves notice even in these days of world travel and of congress multiplicity. For this was the first occasion on which a British-American gathering of neurologists has taken place, and it becomes us to put on record our appreciation of the compliment our American confrères paid us in coming so far (many of them having travelled long distances before reaching the Atlantic) and with such a comprehensive representation of American neurology, to attend a three-day meeting. From the very beginning, the reception by Sir JAMES and Lady BERRY at the house of the Royal Society of Medicine, a note of cordiality was struck, and as the congress proceeded it deepened into one of mutual regard and of personal good-fellowship. While some of the older neurologists of the United States were missed, they were nevertheless worthily represented by the veteran Dr. CHARLES DANA, to whom was given the honour of delivering the Hughlings Jackson lecture, and who performed his task with distinction. An abstract of this lecture and of the discussions as a whole will be found on a later page. The contributions from the younger members of the American Neurological Association were remarkable for the high general level of knowledge and research which they revealed, and they furnished impressive evidence of the standard of attainment which American neurologists have set themselves. Of the existence of this scientific spirit of inquiry and study the chance visitor to American schools of medicine and to American medical conferences has long been aware, but when one of their medical societies (with limited membership, it is true) comes over to offer its contributions to an audience the major portion of which is English, and when one presentation after another forms a fine addition to neurological theory or practice, the effect is undoubtedly highly impressive. Who knows whether the tide of research will not set westwards more strongly than ever, as a sequel to this boldly conceived and admirably executed idea of showing an assembly of our English neurologists what American neurology is doing?

Naturally, we shall not with false modesty underrate the value of the contributions of the former to this successful joint meeting, the more so as in many instances they were of outstanding merit, and were generously pronounced to be so by our American visitors. The truth is that contact of mind with mind arouses emulation and yet leads to the cultivation of deference, and in this respect the discussions of last week must prove eminently fruitful. Criticisms were friendly and controversies were eschewed, as befitted a meeting of two English-speaking races. At the banquet which was the official close of the conference the toast of "Coöperation in English and American Medicine" was surely honoured not only by outward signs, but by mental resolve on the part of guests and hosts that it should stand for a reality to-day. Possibly one of the greatest delights in a joint gathering of this kind resides in the opportunity it affords of seeing and hearing men whose names have been familiar, through the medium of printed contributions, to neurological doctrine. Many of those visitors who crossed the sea to meet us were known by reputation, and it is a charming experience to come into personal contact with medical confrères animated with the same ideals as ourselves and interested in the same subjects; even if imaginary impressions are corrected the end-result is never a loss. Beyond the manifest significance of these gatherings lies a latent and deeper meaning. It is embodied in the idea that this is the only kind of interracial rivalry a war-sick world can bring itself to tolerate—in the case of medical men, an amicable struggle to attain the end of perfect knowledge of the ills of the flesh and to achieve the consummation of the art of healing. In the realm of medical science racial isolation is more than ever an impossibility. Any steps which are taken from time to time to impress this fact on collective medical consciousness will always be welcome. A natural outcome of the British-American Neurological Congress is the hope, publicly expressed by our visitors, that in two or three years a return meeting may be organised on the other side of the Atlantic. A precedent is established with conspicuous success, and it may find an echo in other similar conferences of English-speaking specialists. This would indeed be the best compliment that could be paid to the organisers of the neurological meeting that has now become a pleasing memory.

MEDICAL OFFICERS AND PUBLIC SCHOOLS.

IN April last a memorandum, with a series of recommendations, was published in the Supplement of the *British Medical Journal* dealing with the conditions under which the work of a medical officer of a public school is carried on, and enumerating the circumstances in which the duties and responsibilities differ from those of the general practitioner. The origin of the memorandum lay in the fact that the Medical Officers of Public Schools Association had sought the assistance of the B.M.A. with a view to secure improved conditions in their employment and remuneration, feeling that their status required definition and that their prospects called for improvement. The memorandum was a very detailed piece of work, as all will see who refer to it,[1] for the paragraphs nearly exhaust the alphabet, and these are followed by 19 recommendations, 13 having reference to the work of the whole-time medical officers of public schools and the remainder dealing with the part-time officers. It can be said that the matter has been looked at from every side in the interests of the doctors.

At the recent Representative Meeting a report with this series of recommendations was introduced for adoption by Dr. J. W. BONE, Chairman of the Medico-Political Committee, who admitted that the Association was leaving its ordinary routine in its proposed action, opening up a whole new class of work; but he urged that this was being done at the instance of representations from the whole-time medical officers of public schools, and in the event it was seen that the Representative Body declared themselves ready to deal with the matter. A preliminary debate took place as to the advisability of any such discussion among the Representatives before an arrangement or approach for a preliminary understanding had been arrived at with the governing bodies and headmasters of public schools, and, moreover, it was evident that

[1] Brit. Med. Jour., April 23rd, p. 149, Sup.

each policy, that of going forward and that of pausing, could be soundly supported. Unless the Association had formulated its views already there could be nothing concrete to put before the governors and the headmasters; but unless the school authorities and headmasters were invited to collaborate from the first they might be unwilling to join in a conference whose terms of reference had never been placed before them. The meeting in the end—and wisely, we think—decided to go into committee, with a view in this way to get the opinion of the Representatives broadly upon certain propositions; after which the whole matter could be taken back to the Council of the Association for the conduct of further negotiations. In committee accordingly Dr. BONE moved the most critical of the recommendations contained in the report—namely, that the whole-time medical officer of a public school should be appointed by, be directly responsible to, and have direct access to, the governing body of the school. The recommendation was carried unanimously, and here at any rate we may surmise that all modern educational bodies will be in accord. To make the man who is to be responsible, with the coöperation of all the members of the teaching staff, for the health of the pupils an integral part of the organisation of the school is only logical if—and this is provided for in the Recommendations—the method of election secures an officer whose training and experience fit him for the post. But there will be many things to be discussed in detail, though already some of the great public schools may be inclining towards a policy which has everything in its favour.

The duties which such an officer would have to discharge—speaking in terms of the public school for boys—are many and different, and call for a display of wisdom in various shapes as he comes into touch with the head-master, the teaching staff—especially the house-master, and the boys. He will be responsible for the examination of the new pupils, and the scrutiny of these before admission should be as well organised and as thorough as any entrance examination in respect of educational standards; in fact the physical tests call for greater care as being more difficult of application. At this point he will have the advantage, if and where needed, of coöperation with the pupil's family doctor, but thereafter he will be solely responsible for the boy's health when at school, and from the point of view of isolation he may be at a disadvantage in his clinical practice which is not shared to-day by many of his colleagues in general practice. He must be prepared to make periodical examinations of resident pupils with as much method and particularity as the teaching staff display in their periodical stock-takings of educational progress; it is at least as important that at a given age a boy should have reached appropriate physical development and be bearing the strain of growth equably, as that he should be in a form with his coevals and be holding his own among them. How to obtain the most trustworthy results of physical examinations will call for a real knowledge of boys and an understanding of the part which games play in the world of school. And while it will be his duty to observe, in the interests of staff and pupils alike, that the general sanitation of the school is good, he will also have to supervise and inspect the dietary, when there may be occasion for the display of genuine tact in his relations with his colleagues on the teaching staff. And when it is added that much of this carefully planned work must be the subject of detailed note-making and written reports, enough has been said on general lines, without going into exact definition of clinical procedure, to show that such an officer should be selected in the most careful manner and on indisputable grounds for his fitness both in character as well as in attainments. He should owe his appointment to central authority to which he should make a regular report; and while thus removed from the risks of mere personal bias, he should receive suitable payment for his services. The memorandum of the Association should be circulated to the governing bodies and teaching staffs of the public schools—to a selected group of large institutions in the first place—and their criticism invited. It is clear that all the recommendations will not be acceptable to all the schools, but the main principles should find immediate favour because of their public effect. A basis would thus be obtained upon which fruitful action could take place; for in the words which are the best argument for reform, "Something has got to be done."

CANCER OF THE UTERUS.

To refuse to look unwelcome facts in the face, even when knowledge may bring relief, is a deeply ingrained habit of the human mind. Its extent and its tragic consequences are illustrated by the plain tale of figures amassed by Dr. JANET LANE-CLAYPON [1] in her survey of the results of treating cancer of the uterus. In 51 per cent. of the women who applied for treatment of cancer of the cervix it was no longer possible to undertake radical operation, and on the average, according to their own statement, these patients had had symptoms for six to nine months before attending hospital. Dr. LANE-CLAYPON points out that as the natural duration of the disease from the onset of symptoms to death in untreated cases is about 21 months, the delay of six to nine months is largely accountable for the high proportion of inoperable cases. To the toll of this avoidable waste must be added many years of life lost by an unknown number of women who never come for treatment.

This is only one of many points brought out by the report. Periodical balancing of the accounts in all available records is essential for any clear grasp of the practical results of our knowledge and treatment of disease, and it is equally obvious that in this particular case the mere volume of the scattered literature makes this balancing almost impossible for most medical men, particularly, perhaps, for those specialists to whom it is most useful. The Ministry of Health is to be congratulated in taking up this task and in having found in Dr. LANE-CLAYPON a worker able and willing to assimilate the mass and to reproduce the essential information in a form in which it is readily available for the use of the profession. The data are taken from 848 papers derived from 16 different countries, and cover some 80,000 cases of disease. Yet the main facts have been clearly given in 59 pages of text backed by 76 of tables. To summarise such a summary would do the subject little justice and we recommend all who are interested to study the report for themselves. A few of the salient points may, however, be mentioned mainly to indicate its scope. Cancer of the cervix and of the body of the uterus are as far as possible considered separately. In cancer of the cervix the relative advantage—as measured by the survivorship at the end of five years—of treatment by abdo-

[1] Reports on Public Health and Medical Subjects. No. 40. Cancer of the Uterus: A Statistical Inquiry into the Results of Treatment, being an Analysis of the Existing Literature. By Janet E. Lane-Claypon, M.D., D.Sc. Ministry of Health. 1927. 3s. 6d.

minal hysterectomy and radiation depends on the inclusion or exclusion of cases judged to be inoperable on application. If these are excluded, abdominal hysterectomy has the advantage with 37·6 per cent. of survivors as against 35·8 per cent. If inoperable cases are included the advantage lies with radiation which gives a survivorship of 22 per cent. as against 18 per cent. Radiation thus offers an expectation of life of at least five years to 12 per cent. of the cases deemed inoperable. With all forms of treatment early cases show a mortality about half as large as that of the more advanced borderline cases, and the improvement shown by the later records of individual clinics shows the importance of specialised skill and knowledge. The figures are also analysed from the point of view of age, marriage, and child-bearing, and some lend themselves to discussion of isolated pathological points of interest. Fewer data are available for cancer of the body of the uterus than for cancer of the cervix. The mean age of occurrence in this site was eight years later and the mean average duration of symptoms before application for treatment was 18 months. Abdominal operation gave more favourable results in this site than in the cervix, but as is already recognised the results with radiation are here definitely less favourable than those of operation.

Those who recognise the value of this series of studies and who are themselves engaged in the treatment of cancer may be reminded that systematic records and some method of following up cases may make their skill bear fruit beyond their own practice. On this point we may quote Sir GEORGE NEWMAN in the introduction to the report:

"Unfortunately," he says, "it is difficult to ascertain the exact extent to which radiation is used in England; still more difficult is it to obtain a knowledge of its results, owing to the apparent and natural disinclination of surgeons and radiologists to publish accounts of series of cases. This in turn is no doubt due to the absence or incompleteness of clinical records and of a system for ascertaining the after-histories of treated patients. Such indications as are available seem to suggest that we are much less advanced in the treatment of cancer by radium than certain continental countries, and probably keep less satisfactory records. If these impressions are confirmed, by the acquisition of further evidence, the position is one for some disquietude and for a serious and sustained effort to remedy the defects."

Apart from any possible improvement in treatment an immediate duty seems to be to drive home to the general public the danger of delay. In the words of FRANCIS BACON: "There is surely no greater wisdom than well to time the beginnings and onsets of things. . . . Nay, it were better to meet some dangers halfway, though they come nothing near, than to keep too long a watch upon their approaches."

NEED FOR MORE DENTAL CLINICS.—Prof. W. H. Gilmour, of the University of Liverpool, in his presidential address at the annual meeting of the British Dental Association on July 29th, deplored the fact that owing to the numbers requiring treatment in the school dental clinics and the comparative scarcity of dental officers, millions of teeth were lost because they were not treated at the inception of caries. Additional school dental clinics were being set up all over the country and there were 289 whole-time and 355 part-time dentists now employed in this work. The service was equivalent to that of 354 whole-time officers, but to provide one dentist for every 5000 children in elementary schools the number needed would be 1600. For Liverpool's 134,570 elementary school-children there were only five full-time dentists. The ideal sounded costly, but it would be nothing compared with the benefits which would accrue from a general contentment if good health were established and pain eliminated.

Annotations.

"Ne quid nimis."

NOTIFICATION OF INDUSTRIAL POISONING.

THE Chief Inspector of Factories has issued a circular (Form 304) calling the attention of medical practitioners to their obligation to notify him of industrial poisoning contracted in a factory or workshop. The list of notifiable conditions now includes poisoning by lead, phosphorus, arsenic, mercury, carbon bisulphide and aniline, chronic benzene poisoning, anthrax, toxic jaundice, epitheliomatous or chrome ulceration. The practitioner is also required to notify lead poisoning contracted during the painting of a building whether or not that building is a factory or workshop. Notification is to be made on the form provided, which includes a twofold expression of opinion (1) that the patient is the subject of one or other of the diseases or forms of poisoning enumerated, and (2) that the practitioner believes the poisoning to have been contracted in a factory or workshop or in connexion with the painting of a building. Doubt may arise as to the actual employment of a plumber, but, as he generally spends some portion of his time dealing with lead material in a factory or workshop occupied by his employer, notification should be made. Recurring attacks in the same subject require re-notification if the affected person has continued at work, although not in the case of persons with chronic poisoning who have ceased work. The term aniline poisoning is intended to include the hæmolytic action of red blood cells to which the term anilism has been given. Chronic benzene poisoning takes the form of aplastic anæmia when small quantities of benzene are inhaled over a prolonged period. Notification of poisoning contracted otherwise than under the circumstances specified is not demanded, the reason given being that it would be incomplete and therefore useless for statistical purposes. Forms of notification will be supplied on application to the Chief Inspector of Factories, Home Office, London, S.W. 1. A fee of 2*s*. 6*d*. is payable for any such notification.

THE ROSS INSTITUTE.

IN the first annual report of the Ross Institute, issued since its opening by H.R.H. the Prince of Wales on July 15th, 1926, there is a record of some of the Empire-wide antimalarial work which is at present in progress. The visit of Sir Ronald Ross to Ceylon [1] has now been followed by one undertaken at the invitation of the Indian Tea Association. By the proverbial hospitality of the East, the tour was enlarged to include Malaya, with its pioneer work by Sir Malcolm Watson, before reaching Calcutta and Assam by way of Burmah.

Upon this visit Sir Ronald Ross has issued a separate report which, in clear language, places his conclusions at the disposal of the Institute which made his tour possible. The report lays emphasis upon aspects of the malaria problem which are perhaps too little appreciated even by medical men. A good example lies in the difficulty which the villainous plasmodia normally experience in reaching a fresh host; if the statement runs on the lines of the well-known nursery legend, it is none the less an actuality. Only a fraction of the many anopheline species transmits malaria; only a fraction of the eggs of potential transmitters reaches adult maturity; only a fraction of these adults bites malaria cases; only a fraction of these malaria cases is infective; only a fraction of the infective cases infects mosquitoes; only a fraction of the infected anophelines survives to become potentially infective for man; only a fraction of men bitten by infective mosquitoes becomes infected. The odds, then, against plasmodia maturing in fresh hosts are very

[1] THE LANCET, 1925, ii., 962.

heavy, and malaria can flourish only when anopheles and plasmodia abound—a sustaining thought for the sanitarian who finds that he has failed to exterminate anopheles or plasmodia. He knows that if he can sufficiently lower the numbers of one or both, there will come a point, as is the case now in England, when malaria will cease to be the industrial menace which it still is in the tropics.

When balancing the financial gain of efficient labour against the financial expenditure in antimalarial effort, Sir Ronald sums up the matter thus: "Both malaria and malaria control cost money; but the former costs health and even life itself in addition," a pregnant sentence which indeed contains the entire justification for all sanitary services in all countries. His suggestion that planters would find the issue, with obligatory use, of mosquito nets to their coolies a "profitable charity," and his comment upon the effect of "congregate sleeping" on the rapid spread of infection and reinfection, and upon the value of the building of proper coolie lines, all add weight to the finding of the Near East Malaria Commission of the League of Nations—that malaria is a house infection, and that the proper place to attack the mosquitoes concerned is in the home itself. Of localities visited, pride of place is given to Singapore, on the ground that in no other city in the British Empire has, it is believed, malaria control so progressed or been so enthusiastically carried out, every step being preceded, as is unhappily not always the case, by entomological and engineering surveys. In Calcutta, Sir Ronald Ross witnessed the unveiling, by Lord Lytton, the Governor of Bengal, of the handsome Gate of Commemoration which leads to the little laboratory, situated in the spacious grounds of the Presidency General Hospital, where he worked in 1898. In Assam much keen antimalarial work is being done in certain tea gardens, little in others. The main malarial need of the Province, it is held, is not so much the will to move, as is the case in Burmah, but an organisation on the lines of Malaya. This would be effected by the institution of local Malaria Control Boards, which could exercise persuasion or compulsion on those who bring to nought their neighbours' expensive antimalarial work. A final word deals with the 1987 Indian antimalarial societies which already exist, apparently in Bengal only, under the skilled and enthusiastic initiation and direction of Rai Bahadur Dr. Copal C. Chatterjee. They are of primary importance, not only for what they have done for the villages in which they have been established, but for the evidence which they offer of the growth of the spirit of self-help which it is a main function of the British administration in India to foster.

Sir Ronald Ross has just been awarded the gold medal of the African Society for the best work done on behalf of the African continent. It is not given to many to experience, in their lifetime, even the initiation of a permanent memorial to their life-work other than the work itself. Sir Ronald Ross is happy in this, and it would be most fitting that he should see the Ross Institute set, as it is not at present set, upon an abiding basis.

RECTAL ETHER ANALGESIA IN LABOUR.

IN a paper read before the last annual meeting of the American Association of Obstetricians, Gynæcologists, and Abdominal Surgeons, Dr. J. A. Harrar[1] stated that the Gwathmey method of producing analgesia in labour had been used at the New York Lying-in Hospital in 5800 cases during the last three years with very satisfactory results. The drugs required were morphine sulphate, magnesium sulphate, quinine, and ether. Morphia gr. ¼ was given hypodermically with 2 c.cm. of a 50 per cent. solution of magnesium sulphate to prolong its action. Half the quantity of ether required for surgical anæsthesia (rectal administration) was dissolved in 4 oz. of oil with gr. 20 of quinine alkaloid, and was instilled into the rectum as a retention enema one to four hours after the morphia and magnesium sulphate had been given. When the effect of the first instillation had worn off and the patient again complained of pain, which was usually in two or three hours, a second or even a third rectal instillation of ether might be given at intervals of three hours or more. In 85 per cent. of the cases pain was greatly relieved. There was no prolongation of the perineal stage or increase in the number of forceps deliveries. The only contraindication to the procedure was uterine inertia and the only restriction was not to start too soon. The patient should be in active labour with pains every four or five minutes, and in a primipara the cervix should have attained a dilatation of two or more finger-tips. Dr. Harrar claimed that the applicability of this method was much greater than that of scopolamine amnesia, as it could be used safely and effectively by the practitioner in confinements at home and did not require the services of a trained anæsthestist.

[1] American Journal of Obstetrics and Gynecology, April, 1927.

TUBERCULOSIS AMONG NURSES.

A FEW years ago Dr. Olaf Scheel, chief of one of the divisions of the Ullevaal communal hospital in Oslo, drew attention to the serious frequency with which nurses, especially when on probation, contracted tuberculosis. Was this high tuberculosis rate, he asked, the result of massive infection of persons who, coming from the country, had acquired no immunity to tuberculosis, who were, in other words, Pirquet-negative; or did the strenuous life of the probationer make some old tuberculous focus flare up? Or were there other factors at work? He decided to carry out Pirquet tests systematically, and the very interesting and, to a certain extent, unexpected results of these tests are published in the June number of *Norsk Magazin for Laegevidenskaben*, by Dr. J. Heimbeck. From Jan. 1st, 1924, every nurse was tested with concentrated old tuberculin when starting work, and the Pirquet test was repeated from time to time on those whose reaction was negative. Of the 397 probationers thus examined 208 gave a negative, 189 a positive reaction. A classification of the nurses according as they came from (*a*) the country, (*b*) country towns, and (*c*) large towns, showed that, of the 133 in the first category 82 were Pirquet-negative; of the 116 in the second category 60 were Pirquet-negative; and of the 148 in the third category 66 were Pirquet-negative. After discussing possible explanations of this high proportion of negative reactions in persons between the ages of 20 and 30 (extraordinarily high for the town-dwellers) Dr. Heimbeck refers to two other recent Norwegian series of Pirquet tests in young adults, in both of which about half the number of persons examined were found to be Pirquet negative. The subsequent fate of the nurses, classified according as they were Pirquet-negative or positive, was most instructive. Since January, 1924, as many as 43 developed signs of tuberculosis (6 cases of pulmonary disease, 16 of pleurisy, 3 of tuberculosis of the bones and glands, and 18 of erythema nodosum), and 40 of them were Pirquet-negative when they entered hospital as probationers. All the 18 nurses suffering from erythema nodosum gave a markedly positive Pirquet reaction after the skin eruption had appeared. Among the 51 nurses who were Pirquet-negative in 1924 there was only one of those still nursing in the hospital who remained so; the rest had become Pirquet-positive. Of the 72 Pirquet-negative nurses belonging to the probationers of 1925 two remained Pirquet-negative. Of the 62 Pirquet-negatives of 1926 only 18 were so still in 1927. Having come to the conclusion that a negative Pirquet reaction indicated susceptibility to tuberculosis, and a positive reaction the reverse, Dr. Heimbeck argued that if the Pirquet-negatives could be converted to Pirquet-positives by a mild infection, such as that induced by inoculation with Calmette's B.C.G. vaccine, a certain degree of immunity to tuberculosis might be acquired. Instead of giving the vaccine by the mouth, as recommended by Calmette in the case of infants, he

gave it by subcutaneous injection, a dose of 0·05 mg. (repeated in some cases after a week's interval), being found after some preliminary tests to be the most suitable. The Pirquet reactions of these nurses became positive. But it remains to be seen whether they have been effectively immunised against tuberculosis or not.

THE RETIREMENT OF MR. F. G. HALLETT.

It was announced at the Comitia of the Royal College of Physicians of London, held on Thursday, July 28th, that Mr. F. G. Hallett had expressed a desire to retire in December next from the post of Secretary to the English Conjoint Examining Board. Mr. Hallett joined the office staff of the Royal College of Surgeons of England in 1877 and became assistant secretary to the College five years later. In 1886 he was appointed secretary to the newly constituted Conjoint Board and has completed, therefore, 50 years' service at the College and with the Board. We are glad to know that recognition of this long and arduous service is to be reflected in the arrangements made for pension, but neither capital sum nor annual life payments can really express the debt which the medical profession owes to Hallett's long and wise labours. He devised arrangements for the examination conducted by the Board which were equally directed to the advantage of examiner and examinee, and made the scheme of the Board an example, in principle and detail, to all educational authorities having the duty to set up qualifying tests of medical knowledge. Only those who have come into personal touch with him can be aware of the amount of personal trouble as well as organising power expended by Hallett in the conduct of the examinational routine of the Conjoint Board; he will take with him into retirement a wide wish that he should live long to enjoy leisure.

PROPHYLAXIS OF OPHTHALMIA NEONATORUM.

In a paper by Mr. A. E. Iles [1] the diminution of the number of notified cases of ophthalmia neonatorum in Bristol from 15·7 per 1000 births in 1922 to 8·3 in 1925 is attributed to three causes: (1) training and registration of midwives; (2) increased use of Crédé's method of prophylaxis; and (3) compulsory notification, leading to early treatment. The figures may be compared with those of London where (under compulsory notification) the incidence increased during the war years from 7·75 per 1000 births in 1914 to 10·37 per 1000 in 1919; of Leeds, where the proportion in 1919 was 13 per 1000, and of Glasgow, when in 1913 the ordinary definition of ophthalmia neonatorum was extended to include any inflammation of the eyes accompanied by discharges occurring during the first 21 days of life, with the result that the rate of disease was raised at once from 9·6 to 12·6 per 1000 births.[2] This last fact points to a possible fallacy underlying some of the foregoing figures. In the post-war years in Glasgow, according to Dr. Freeland Fergus's computation, the incidence of gonococcal cases fell from 10·3 per 1000 births in 1919 to 2·9 in 1924, a very remarkable decrease, but one which there is reason to believe is not confined to Glasgow. The same tendency appears in America. From statistics of the disease in Newark, a city of some 450,000 inhabitants, Dr. Julius Levy concludes that there was an increase in ophthalmia in the three years following the war, and that there has been a very marked and rapid diminution in the number of cases of ophthalmia in the last three years.[3] It seems highly desirable that a systematic comparison of the incidence of the disease in different cities in recent years under parallel conditions of notification (and either all including or all excluding cases not due to the gonococcus) should be undertaken. So far as we are aware this has not been done. With regard to prophylaxis, several writers have pointed out that the routine use of silver nitrate drops in a concentration of 2 per cent., as originally recommended by Crédé, is followed in a considerable proportion of cases by an undesirable reaction, and it is now generally recommended that the strength used for prophylactic purposes should be 1 and not 2 per cent. Mr. Iles recommends a 1 per cent. solution of mercurochrome, a compound of mercury and fluorescine, which he believes to be safer than silver nitrate, as it hardly ever gives rise to reaction.

[1] Bristol Medico-Chirurgical Journal, Summer, 1927.
[2] Trans. Oph. Society, 1920, Discussion on Ophthalmia Neonatorum.
[3] American Health Congress, Atlantic City, New Jersey, May, 1926.

THE FOOD OF THE JAPANESE.

It is interesting to study the food problems of a practically homogeneous race which is changing from an agricultural to an industrial character. A great deal of work has been done by the medical staff of the Japanese Army on the dietaries adapted to their countrymen when doing light, moderate, and heavy work, and recently Prof. Shozo Toda, of the Kyoto University, has discussed in the *Japan Medical World* the actual consumption of food in Japan. Japan is one of those fortunate countries which produce nearly all the food they need. Some rice, beans, sugar, eggs, and wheat flour are imported but very little else, the total excess of food imports amounting, it is believed, only to about 11 per cent. of the nation's requirements. It is calculated by Prof. Toda that the mixed population of Japan, 56 million in all, requires the same amount of food as 43 million adults. After careful inquiry of rural and urban government authorities he has corrected the statistics of food production and consumption, which would appear, it may be said, very greatly to underestimate the production of vegetables other than cereals and fruits. The kitchen utilisation of this corrected food consumption yields figures which agree very closely with Colonel Koidzumi's results on actual feeding experiments alluded to above. The following table shows this:—

Daily Consumption of Food in Japan Expressed in Grammes (Percentage of Total in Parentheses).

	Statistical.	Estimated actual.	Army metabolism experiments.
Protein	98 (15)	120 (15)	95 (14)
Fat	16 (5)	20 (5)	19 (6)
Carbohydrate	570 (80)	670 (80)	545 (80)
Calorie value	..	2900	2800

These values when compared with Voit's scale show a marked deficiency of fat, even when allowance is made for the relative weights, 70 kg. and 50 kg., of the average German and Japanese adult men. The ratio of physiological demands of food calories of the European and Japanese are 100 : 85, based on weights and body surfaces; and on this basis the Japanese eats more than the European, this being mainly due to the large proportion of rice consumed in Japan. This cereal appears to be very digestible in all respects, and although poor in protein and very poor in fat, especially meets the taste of the Japanese. The protein consumed by the European is largely derived from land animals, whilst the Japanese relies mainly on fish, in so far, that is, as he consumes animal food. Although the consumption of fish is going up, "the modern urban people in Japan are inclined to take a simple food of polished rice with some subsidiary diet. . . . This monotony of dietary produces malnutrition. . . . Moreover, it seems to be a chief cause of the increase of beriberi." The growth of population has been approximately proportional to the production of rice. Disease or a higher rate of mortality does not seem to follow a poor rice year but crime does. The present position of Japan is not favourable to cattle raising on a large scale, but larger catches of fish might easily be made and something done to use a greater proportion of the total catch for food and less for manure. The problems of a population which has so rapidly altered its habits must in the nature of things be difficult.

ISAAC NEWTON: A MEMORIAL VOLUME.

IN this year falls the bi-centenary of Newton's death; and in January, 1926, the council of the Mathematical Association suggested that the occasion should be commemorated by a special number of the *Mathematical Gazette*. Finding, however, that the matter would far transcend in quantity the limits of a single number of the *Gazette*, the council decided to issue the volume as an independent book.[1] Its contents, as might be expected, are for the most part essays on abstruse mathematical subjects, written by eminent mathematicians and chemical physicists, and are considerably beyond the understanding of the general reader; but some of the papers deal with subjects which are not only of interest to experts but can also be enjoyed by any one who has had some training in the physical sciences. For instance, the second paper, by Prof. H. E. Armstrong, on the Forms of Carbon and Chemical Affinity, should be read together with Sir William Bragg's two charming books, Concerning the Nature of Things, and Old Trades and New Science. Newton was an enthusiastic chemist, and was also deeply interested in optics and the phenomena of colour. At first sight it would seem that carbon and colour have nothing to do with each other, but anyone who reads Prof. Armstrong's paper will find that they have, at least in so far as substantive colour goes, for in Prof. Armstrong's words, "colour appears to be the outcome of an effect exercised at absorbing centres of an ethenoid character." Prof. A. R. Forsyth contributes a paper upon Newton's Problem of the Solid of Least Resistance. The problem, as Newton recognised, has direct bearing upon the forms of ships; Newton's postulates have not, however, stood the test of modern research, although they led to Froude's experiments, begun about 1870. For the general reader the most interesting paper is that contributed by Prof. D. E. Smith, consisting of two unpublished documents by Sir Isaac Newton; these are a notebook written when he was about 17, and a proposal for a commission to prosecute coiners and counterfeiters, written when he was Master of the Mint, about 1699. The documents are in Mr. Pierpoint Morgan's library. The notebook contains sundry recipes, including some which are medical. Other papers deal with Newton and his homeland, by Mr. J. A. Holden, M.A., master of the King's School, Grantham; and Trinity College in the time of Newton, by Prof. G. N. Watson. The book is excellently illustrated, and altogether is a compilation worthy of its subject.

ULTRA-VIOLET RADIATION AND RESISTANCE TO INFECTION.

THE curative effects of radiation in rickets and surgical tuberculosis, the well-known bactericidal action of ultra-violet rays, and perhaps an instinctive association of sunlight with good health, have led to a widespread assumption that man's resistance to many if not all forms of disease may be increased by actinotherapy. In a clinical study of one aspect of this hypothesis Dr. Claire M. Hill and Dr. Janet H. Clark have tested the possibility of increasing the natural resistance of rats to pneumococcal infection. In the *American Journal of Hygiene* (July, 1927) they give full details of a thorough investigation of this problem, together with a short survey of the other clinical and experimental work which has a direct bearing on it. Considering the difficulty of estimating and expressing ultra-violet dosage and the variety of infections studied it is not surprising that they have found the available data contradictory. Certain sequelæ of ultra-violet radiation appear to be definitely established, such as the leucocytosis with relative increase in the lymphocytes, an increase in the number of blood-platelets, and a transient increase in the bactericidal power of the blood as tested on certain cocci by the slide-cell method. These changes in the blood seem to be compatible with an increased resistance to infection, but they cannot be regarded as proof of such an effect. Against the belief that ultra-violet rays have any such beneficial action is the report of L. H. Barenberg, I. Friedman, and W. Green,[1] who are quoted as having tested prophylactic radiation with the mercury-vapour lamp on a large number of children in an institution during the winter months. Daily radiation failed to reduce the incidence of the usual febrile and respiratory infections, from which the irradiated children suffered rather more than the control group. The experiments of Dr. Hill and Dr. Clark were designed to test the possibility of increasing resistance to pneumococci of Group I. in a colony of inbred albino rats under varied but rigidly controlled conditions. It was found that small doses of ultra-violet rays did not affect the rate of growth of the rats, but large doses resulting in severe burns were associated with relatively slow growth. The only constant change in the blood was an increase in the blood-platelets, but this could not be correlated with increased resistance to infection. Daily irradiation for two or three weeks seemed to give rise to a slightly increased resistance to subsequent infection, but irradiation after infection was without demonstrable effect. They conclude that in the present state of our knowledge there is little justification for the use of ultra-violet rays as a general therapeutic agent in infectious diseases, and that there is very little support for the belief that actinotherapy can increase the resistance of normal individuals to infection.

CONGRESS ON OCCUPATIONAL DISEASES.

THE Permanent International Committee on Occupational Diseases having decided to abstain from the congress called by Hungary in 1928 has just instructed its members of French nationality to organise the Fourth International Session which will take place at Lyons from April 3rd–6th, 1929. The questions on the agenda are as follows: 1. Silicosis (three reports: ætiology, clinics, and legislation); a general report dealing with forms of pneumoconiosis. 2. Cataract of occupational origin (two reports: ætiology and clinics). 3. Endocrine system and forms of poisoning (it is intended to furnish under this heading a single report to be entrusted to three experts). 4. Communications relating to results of inquiries so far unpublished. If it is found advisable to include another question on the agenda the subject chosen will be the problem of occupational disease statistics.

Prof. Etienne Martin, of the Institute of Legal Medicine of Lyons, in collaboration with Prof. Agasse-Lafont and Prof. Kohn-Abrest, of Paris, with the approval of the executive, will designate the experts selected to present reports on the subjects before the Session. Requests for all further information should be addressed to Prof. Etienne Martin, or to the Secretariat of the Committee, Hygiene Service, International Labour Office, Geneva.

THE death is reported of Dr. Rudolph Magnus, professor of pharmacology in the University of Utrecht.

Dr. Robert Howden has resigned the chair of anatomy in Durham University, which he has held for a period of 38 years.

Sir Hugh Anderson, Master of Gonville and Caius College, Cambridge, and Prof. T. R. Elliott, Director of the Medical Unit, University College Hospital, London, have been appointed members of the Medical Research Council to fill the vacancies caused by the retirement of Sir Frederick Andrewes and Sir Cuthbert Wallace.

[1] Isaac Newton, 1642–1727. A Memorial Volume edited for the Mathematical Association by W. J. Greenstreet. London: G. Bell and Son, Ltd. 1927. Pp. 180. 10s. 6d.

[1] Jour. Amer. Med. Assoc., 1926, lxxxvii., 1114.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

CCXXXV.—THE TREATMENT OF DIPHTHERIA.

EVEN after our 30 years' experience in the treatment of diphtheria by antitoxin it still seems essential to insist on the necessity for immediate treatment. The chances of recovery diminish steadily with the lapse of time between the onset of the disease and the administration of serum, and valuable hours may be lost in waiting for a bacteriologist's report. Generally speaking if a case is suspicious enough to be swabbed it is suspicious enough to be given a dose of antitoxin, and it is even sound practice to give antitoxin in the face of a negative culture where the clinical appearance suggests diphtheria. The only objection to antitoxin is the occasional occurrence of serum sickness, and if a concentrated serum is used this risk is greatly reduced. The belief that diphtheria antitoxin plays a part in the production of the paralytic sequelæ of the disease is without foundation, whilst the occurrence of "antitoxin" abscesses merely indicates faulty technique in the injection.

Isolation.—A patient treated at home should be isolated in a well-ventilated room, and the services of a trained fever nurse engaged. Small pieces of clean rag should be provided for wiping up discharges and these should be promptly burnt after use. The patient's crockery and spoons should be specially marked and boiled after each meal. Isolation may be terminated when two or three consecutive negative cultures obtained at a few days' interval have been reported. Before returning the room to its normal use it should be very thoroughly "spring" cleaned and the patient's personal linen and bedding disinfected by steam. Toys and books should be burnt.

Serum Dosage.

On this point there are two principal schools of thought, one believing in the exhibition of massive doses up to 150,000 or more units of antitoxin, whilst others who find wide support in this country and the United States hold that amounts up to 50,000 units are sufficient to bring about all the benefits to be expected from serum. The following system of dosage is based on the practice of the latter school.

In estimating the dose the factors to be taken into account are the day of disease, the extent and severity of the local lesion, and the amount of toxæmia as indicated by pallor, prostration, cervical adenopathy, and albuminuria. Age or body-weight need not be specially considered since any modification that one would be inclined to make for a small child is counter-balanced by the greater susceptibility at that age. Mild cases seen early with slight patching on one or both tonsils should be given from 2000 to 6000 units of antitoxin. Cases presenting a moderate amount of toxæmia and patching on both tonsils will require from 8000 to 16,000 units of antitoxin. Severe cases with extensive membrane involving the fauces, uvula, soft palate, and posterior pharyngeal wall, accompanied by profuse nasal discharge, fœtor and profound toxæmia should be given 30,000 or 40,000 units at once. These doses apply to cases coming under treatment on the second or third day; cases presenting corresponding lesions after this period require an additional 2000 to 10,000 units according to their severity. In the mild and moderate types an increase of dosage is indicated if a nasal discharge is present, or if the faucial pillars, posterior pharyngeal wall, or uvula are involved.

The ideal method is to give an adequate single dose at the outset of the treatment, but even the most experienced do not always find this possible, and the throat and general condition should be carefully re-examined at the end of 12 or 24 hours; a spread of the membrane, or the failure of a nasal discharge to clear up indicate repetition of the dose.

The serum may be injected subcutaneously, intramuscularly, or intravenously, the route now most extensively employed being the intramuscular, and the site the middle of the outer aspect of the thigh. In severe or late cases intravenous injection of at least part of the dose is preferable, but in children this is frequently difficult, and it may be wise to adhere to the easier intramuscular method. Before intravenous injection the serum should be warmed by standing the phials in a vessel of warm water.

Serum Sickness.—Anaphylaxis.

After the administration of serum from 10 to 50 per cent. of patients, according to whether concentrated or unconcentrated serum is used, show one or other of the manifestations of serum sickness. The commonest, and frequently the only one of these is the appearance of a rash which comes on from about the fifth to the twelfth days after injection. It may be urticarial, erythematous, morbilliform, or scarlatiniform in appearance, the first being the most usual and is generally intensely itchy, a soothing application of calamine lotion being frequently required. Arthritis is less common and may be present with the rash or alone; pain is the outstanding feature, little or no swelling being visible. Localised œdema of the eyelids, upper lip, genitalia, or hands and feet may occur, also some degree of pyrexia.

Anaphylaxis happens so rarely that it should never be considered a contraindication to serum administration. However, persons who have been previously sensitised by injections of horse serum, or are subject to asthma, should be desensitised by injecting subcutaneously 0·5 c.cm. of serum and following that up in not less than four hours with the therapeutic dose. If a patient has to receive antitoxin more than ten days after a previous injection the same procedure should be followed.

General Management.

Until all danger from circulatory failure is past, the patient should be rigorously prohibited from sitting up in bed, only one soft pillow being allowed at first, and every possible strain being avoided. The bowels should be kept open by enemata. The diet should be fluid at first, but liberal when the febrile period is over. In moderate cases after two or three weeks a second pillow may usually be given, then a third, then sitting up may be permitted, until finally the patient is allowed up. In severe cases, however, or in those whose pulse is unsatisfactory, these advances require to be made with more caution, the patient being confined to bed for six to eight weeks. After further medical supervision is unnecessary a month's holiday is desirable. Patients who have suffered from circulatory disturbances should avoid hard exercise for a year or more.

Local treatment of the membranous deposit is superfluous except in severe cases or where there is superadded secondary infection, when gentle douching with warm water may be carried out.

Heart Failure.

The patient should be placed in a completely recumbent position on the appearance of pulse irregularities in rhythm or rate. If there is pallor or faintness the foot of the bed should be raised on blocks, and fluid nourishment given frequently in small amounts; hypodermic injections of strychnine or camphor in oil may be called for. Adrenalin has gained some reputation in this condition; its value or indeed that of any drug, is problematical, but they should always be tried. In sudden collapse, or when vomiting comes on, all feeding by the mouth should be stopped and rectal salines given, as well as hypodermic stimulation every two or three hours. If pain is present, hot fomentations should be applied to chest and abdomen. In extreme cases, when restlessness is a feature, a carefully estimated injection of morphine may give the patient a spell of quietness, and postpone the almost inevitably fatal issue. Thirst, often a distressing feature when fluids by the mouth are cut off, may be partly alleviated by rectal salines when these are retained; the lips and mouth should be moistened frequently with iced or acidulated water.

Post-diphtheritic Pareses.

These tend to spontaneous recovery. The patient must be kept at complete rest and strychnine given by the mouth. The tendency to nasal regurgitation

in palatal paresis can usually be overcome by careful feeding with semi-solids. In pharyngeal paresis the patient requires to be fed by the nasal tube and the foot of the bed raised so that saliva may drain from the mouth. The recovering patient should be carefully fed at first with thickened fluids.

Laryngeal Diphtheria.

Laryngeal diphtheria should be treated by an immediate dose of antitoxin of 12,000 to 20,000 units; if severe faucial or nasopharyngeal lesions are present in addition 30,000 to 40,000 units should be given. A croup kettle and a half-tent should be arranged so that the air in the neighbourhood of the head is kept moist and warm by a current of steam. Hot fomentations should be applied to the neck frequently. In hospital it is usual to postpone interference as long as possible, but in general practice this may be dangerous. Rapidly recurring spasms of dyspnœa, great restlessness, cyanosis, and a fast flickering pulse are obvious indications, but there are many lesser gradations of the obstructive syndrome whose gravity has to be estimated. It is better to operate early than too late, and when the doctor cannot be within easy call it is sound practice to operate.

Tracheotomy.—Intubation is essentially a hospital procedure, and the operation to be recommended for the practitioner is high tracheotomy. A detailed account of this is not possible here, but some of the important points may be stressed.

An anæsthetic is not necessary, but the patient must be firmly held, especially the head, which must not be allowed to move from the vertical. The anatomical landmarks must be carefully selected, the midpoint of the lower border of the cricoid never being lost sight of. The incision should be *absolutely* in the midline. Bleeding need not cause alarm, and steady swabbing must be carried on to prevent the field of operation from being obscured. When the trachea is opened there is no urgency about inserting the tube until the first spasm of coughing has cleared away mucus, blood, and fragments of membrane. In the after-treatment the main consideration is to get the tube out, and attempts to this end should be made about the third day after operation. As a rule the patient can be fed quite well by means of a feeder or a spoon and very rarely is the nasal tube required.

Diphtheria in other Situations.

Nasal diphtheria with membrane formation requires from 6000 to 8000 units of antitoxin, and cases in which there is a watery or blood-stained nasal discharge containing *B. diphtheriæ* will usually yield to a small dose of 2000 units. Conjunctival diphtheria should be treated with 6000 or 8000 units, and in diphtheria complicating operation wounds or occurring as a secondary infection of skin eruptions it may be necessary to give large initial doses up to 20,000 or 30,000 units.

Prophylaxis.

Passive immunisation can be conferred by the subcutaneous injection of 500 units of antitoxin. The protection lasts about three weeks and is immediate.

Active immunisation can generally be secured by three doses each of 1 c.cm. of toxin-antitoxin mixture subcutaneously. The procedure should be delayed till after the ninth month of life; in children under school age no preliminary Schick test is necessary. Up to puberty a preliminary Schick test without a control should be performed, but after that age, and in retesting after immunisation, all tests should be controlled by the heated inactivated toxin. Protection takes some months to develop; the lapse of six or twelve months will be found a convenient interval before retesting. Those still susceptible as revealed by the Schick test should receive a further course of toxin-antitoxin injections.

Carriers.

Local applications have little effect, and the best prospect of terminating the carrier state is held out by investigating the nasopharynx and correcting any deformity or pathological condition. Tonsillectomy and removal of adenoids are often useful.

ALEX. JOE, D.S.C., M.D. Edin.,
Medical Superintendent, North-Western Hospital (M.A.B.).

Special Articles.

A FURTHER VISIT TO GERMAN SPAS.

A VISIT to some of the West German spas was reported in THE LANCET of June 12th, 1926. This spring an opportunity was given to our representative to visit nine other spas, and so to complete his account of German inland watering places.

AACHEN.

Aix-la-Chapelle, to use the more familiar name, is situated on the main line from Brussels to Cologne, just on the German side of the frontier between Belgium and German. It is an industrial town of 150,000 inhabitants, chiefly engaged in making needles and in the woollen industry. At its western end is the spa, at the foot of well-wooded hills, and as the prevailing winds are from the west the smoke from the town and its factories rarely approaches the area occupied by the Kurhaus with its baths and wells. Indeed, unless one climbs the wooded slopes which overlook the town, the neighbourhood of the industrial area is forgotten. The hot sulphur springs issue at temperatures varying from 162° F. downwards; the hottest, of course, being cooled before use. In addition to sulphuretted hydrogen, the waters contain sodium chloride, sodium bicarbonate, and sodium sulphate, being thus well suited for the treatment of rheumatism and gout. Here is found an excellent form of douche massage peculiar to the place. The patient enters a deep immersion bath, with steps on either side, in company with the bath attendant. The latter, seated facing the patient, applies massage and under-current douching for some 15 minutes, during which the bath is gradually emptied. The manipulations over, the attendant leaves the bath, which is gradually refilled, and the patient lies quietly in the warm water for the prescribed period. He is then dried with warm towels and sent to rest, or, if he be physically fit, is allowed to swim or wallow in a commodious bath of running warm sulphur water.

Until the introduction of intravenous methods, Aix-la-Chapelle was justly famed for the treatment of syphilis and parasyphilitic ailments by the combined use of mercury inunction and sulphur waters. A certain number of these patients are still treated here, but most of those coming for the cure are sufferers from rheumatism, gout, skin diseases, torpid liver, or intestinal catarrh. The principal hotel adjoining the baths and Kurhaus is well warmed and most comfortable in every way. Mention should be made of the Landesbad, a hospital of 365 beds, for the treatment of the insured classes, with well-staffed laboratories for all pathological and biochemical investigations.

KREUZNACH.

This spa lies in the valley of the River Nahe, a quarter of an hour's journey from Bingen, where the Nahe flows into the Rhine. Here are large saltworks, and radio-active brine baths containing lithium and iodine are the most important features of the treatment. The strength of the baths is varied by the addition of mother-lye from the saltworks or of concentrated radium emanation water. Diseases of women, rheumatism, and "scrofula" are said to derive special benefit. Scrofula would appear to be a pretuberculous condition in children characterised by glandular enlargement. There are several large children's homes, both for treatment and convalescence, but although several homes were visited, a typical case of scrofula could not be demonstrated. The children appeared well-fed and happy, and the bracing climate and good feeding should do much to reinforce the action of the local radium emanation in overcoming the after-effects of malnutrition in early childhood from which many German children suffered during the war and the subsequent inflation

period. The Kurhaus and Palast Hotel was the headquarters of the German General Staff in 1917 and 1918. The baths contain inhalation rooms filled with vapourised saline water for the treatment of catarrh of the lungs, nose, and throat, and it was of passing interest to be told that in this foggy atmosphere the ex-Kaiser sought relief. The Palast Hotel has once more assumed its normal function, and is a most comfortable place. The hotel adjoining is still the headquarters of the French occupying this area. Kreuznach has some 27,000 inhabitants, and is the centre of the Nahe wine industry.

BAD MÜNSTER AM STEIN.

This lies in the Nahe valley, a few miles above Kreuznach, in the concavity formed by a wide bend in the river, on the opposite bank of which the Rheingrafenstein rises sheer to a height of 300 metres. The waters are radio-active salines, and the bath-houses, when rebuilt in 1911, were so constructed as to retain as much as possible of the natural radium emanation. The lawns in front of the Kurhaus are bounded on two sides by high Gradier-Werke, being stacks of brushwood used for concentrating the salines by evaporation. Consequently, the patients spend a large part of their time in an atmosphere impregnated with moisture and salt, and even in the height of the summer the gardens are cool and pleasant. Bad Münster is little more than a large village, but it has modern sanitation and lighting, and is a real beauty spot. Shaded walks in the valleys or stiff climbs in the hills afford choice in plenty. The diseases mainly treated are gout, rheumatism, scrofula, and female ailments.

BAD MERGENTHEIM.

Mergentheim, on the River Tauber, is the old Frankish town whose castle was for centuries the home of the powerful "Deutsch-ritter," a religious order of German knights. The old castle and town are separated by a park and the river from the Kurhaus and modern buildings surrounding the springs. Unlike most German spas, Bad Mergentheim is privately owned. It is to be hoped it will weather the lean years, for in many respects Mergentheim is an ideal cure place. Although patients may live in the lodgings or hostelries in the old town, the principal hotels belong to the spa, and each hotel has a resident doctor. In all these hotels different kinds of diet are prepared daily, and each kind of diet is sub-divided according to the needs of the individual patient, the quantity as well as the quality being ordered by the medical resident. A shady promenade and colonnade adjoins the springs, and by the time the orchestra arrives to play the opening morning hymn, most of the patients are on parade sipping their mineral waters. More importance is attached to drinking the waters than in most spas. They are bitter salines containing different quantities of sodium and magnesium sulphates as well as sodium chloride. The ailments principally treated are cholecystitis and gall-stones, cirrhosis of the liver, obesity, diabetes, and catarrhal diseases of the stomach and intestines. In Bad Mergentheim the cure is of primary importance, but full provision is made for amusement, and with Würzburg and Rothenburg within easy reach, it is a very pleasant spot to visit.

BADEN-BADEN.

In a pamphlet issued by the municipal inquiry office it is stated, "Only a small percentage of those who visit Baden come for the cure." More's the pity, but the reason is not far to seek. Baden has been made so attractive by nature and art that it can rely on drawing a sufficient number of visitors whose spending power renders the authorities more or less independent of the invalids on whose support other spas must rely. Gardens, reminding one of the ordered beauty of the Cambridge "Backs," border the banks of the rippling Oos in the bottom of the valley, surrounded by the mountains of the Black Forest. In the spring, with magnolia, syringa, azalea, chestnut, and lilac in bloom, with a soft, warm air sufficiently stirred by the cool breezes following the course of the river, the outdoor conditions are ideal for the invalid or the weary.

The spa waters issue at a temperature of 154° F., and contain lithium and iodine. The bathing establishments have evolved an elaborate form of treatment whereby the patient enters in turn a hot air room, very hot air room, douche massage, steam room, hot swimming bath, cooler immersion bath with sand at the bottom, still cooler swimming bath, cold douche room, and finally a cold plunge bath. This takes about 1½ to 1¾ hours. It is all quite pleasant, and the patient is ready for his couch and towels when it is over. Subsequently a feeling of buoyancy and hunger follows. This must be the moment of temptation for the obese gentlemen who appear to form the majority of those undergoing the cure. The gouty and rheumatic take this treatment, and there are well-equipped inhalation rooms for those suffering from bronchial catarrh. There are luxurious hotels where wealthy people can enjoy rich food and dance till the small hours. It is evident that the practice of early water drinking is not as prevalent as it once was.

BÜHLERHÖHE SANATORIUM, some 800 metres above sea-level, is reached by a 40-minutes irregular ascent from Baden-Baden through the Black Forest. Originally built to accommodate 12 German generals in need of rest or convalescence, it is now under private control, and offers rest and open-air treatment in most attractive surroundings. Diet receives careful attention, and there is a small hydropathic department. The resident physicians have a laboratory where necessary pathological and biochemical investigations can be carried out. Bühlerhöhe is specially recommended for the after-cure of patients with heart disease who have been treated at Nauheim and Kissingen, or after sulphur treatment at Schinznach. Anæmia and non-infectious diseases of the respiratory system are also treated.

WILDBAD.

The little town is situated at a railhead 12 miles up a valley from the main line from Paris to Vienna. That is has historic associations, readers of "Jew Süss" will remember well—they would also understand the presence of several royal baths in the comparatively small bathing establishment. The spa waters issue at a temperature of 91° to 104° F., and are consequently applied without previous heating or cooling. They contain little mineral matter, but are radio-active. Drinking the waters is not pressed, though there is the usual Trinkhalle. Rheumatism and gout are treated by immersion baths, and the waters frequently cause a "bath reaction" after the first five or six baths, after which more rapid progress may be expected. Dr. Schober has made some experiments indicating that the local radio-active waters stimulate a more rapid growth of protoplasm than plain water. Through the valley of Wildbad runs a trout stream, and visitors for the cure can obtain permission to fish a long stretch of likely-looking water.

BAD REICHENHALL.

Reichenhall is a country town, 1500 feet above North Sea level, surrounded by the snow-capped peaks of the Bavarian Alps. The frontier between Austria and Germany runs between Reichenhall and Salzburg, which is only a few miles away, but the passport visa is obtained without difficulty to enable visitors to see the historic palaces and castles of Salzburg. There is a daily air service to Reichenhall from Munich, and as the aeroplane reaches Reichenhall early in the morning and does not leave till evening, it is available for short or long flights over the Bavarian Alps and Austrian Tyrol. Reichenhall has some of the richest salt springs in Germany, containing 24 per cent. salt (as compared with the 2–4 per cent. of sea water) and whilst winning salt is the main industry of the 7000 inhabitants, these salines, containing bromine and iodine salts, are carefully graded for bathing purposes. The mountain air, mild and clear from impurities, is specially suitable

for the sufferers from non-tuberculous pharyngitis, laryngitis, bronchitis, asthma, and hay fever, who flock here from all parts of Germany and Austria. The climate is also beneficial in rickets and scrofula. Inhalatoria and compression chambers abound, whilst the notice that smoking is forbidden meets the eye everywhere. Spitting on the ground would probably be followed by banishment. There is a peasant theatre where the players wear the picturesque national costume. The artists are of peasant origin, but are true professionals. Each performance ends with the folk dances of the Bavarian Highlands, which are invigorating to watch, and recall the small hours of a St. Andrew's night. Bavarian hospitality must be experienced to be appreciated; both place and people make the visitor feel at home.

BAD ELSTER.

This Saxon spa is only a few miles from the neighbouring Czecho-Slovakian spas, Franzensbad and Marienbad, and has very similar waters. These all contain iron and varying quantities of Glauber's salt and sodium bicarbonate, with free carbonic acid gas. Peat baths and packs are used on a large scale. The chief indications for the cure are anæmia and disorders of the respiratory system—tuberculosis excluded—cholecystitis and gastric catarrh, diseases of women, particularly inflammatory conditions of the pelvis and menstrual disorders. The last wing of the new bath-houses has just been opened, and is spacious and well-equipped. Outdoor treatment in sunlight and swimming baths has been well-developed, the climate and surroundings being particularly suitable. Bad Elster is only a small place, but has an attractive casino and theatre and pleasant countryside.

Dr. Köhler's sanatorium is a well-equipped private institution for diagnosis and treatment, where diet is properly controlled. Attached to it is a home for the open-air treatment of poor children suffering from surgical tuberculosis and malnutrition. Excellent work is being done here. Dr. Köhler said that at one time he was only enabled to keep the place going by the aid of money received from the British "Save the Children" Fund. The money sent to him was well spent.

BAD BRAMBACH.

Brambach lies on the frontier between Saxony and Czecho-Slovakia, being about half-way between Bad Elster and Franzensbad. It was only in 1910 that building operations revealed what proved to be the strongest known radio-active springs. There is a large mineral water factory and bottling department, which exports a palatable table-water and ginger ale, the only other buildings being the four small hotels owned by the same company. The bathing rooms are in these hotels. The climate is bracing, and the atmosphere has been shown to be radio-active up to a good height and over a considerable area around the springs. Bad Brambach is still a spa in embryo, but has waters which may some day make it famous.

SOUTH AFRICA.

(FROM OUR OWN CORRESPONDENT.)

Report of the Hospital Survey Committee.

A REPORT by this Committee on the hospital facilities and kindred services in the Union was presented to both the Houses of Parliament on June 25th. Sir Edward Thornton was chairman of the Committee, of which there were four other members, and in addition a member for each of the four provinces was nominated to take part in the investigation in so far as the particular province was concerned. The needs of each of the four provinces are dealt with separately in detail. The report lays stress on the extreme shortage of beds at most of the public hospitals, particularly in regard to provision for the coloured and native races. The overcrowded state of many of the hospitals has already been pointed out by the Hospital Committee of Inquiry in 1925, and the present Committee is satisfied that the strain on the hospital beds of the Union to-day is appreciably worse than it was in 1925; at hardly any large centre, with the exception perhaps of Johannesburg, can it record any amelioration of conditions. Greater hospital accommodation is required in the Union than in European countries, as separate provision has to be made for European, coloured and native patients. The Committee concludes that in other countries a ratio of one bed for every 200 persons is the ideal to be aimed at, and that in practice a community is not ill-served if it has one hospital bed for every 250 of its population. In most countries it is generally found that proportionately greater hospital facilities are required by the inhabitants of a densely settled area than by those living in the more sparsely populated. This is true to a certain extent for South Africa, but here there are other factors to be taken into consideration, such as the proportions of the constituent elements of the population and the character, habits, and development of each section thereof. Thus it will be many years before the raw native living in the heart of Natal or the Transkei will require the same proportion of hospital bed accommodation as the European. Even among Europeans the demand varies enormously. The older generation of Boers, particularly amongst the farming community, has not lost its fear of hospitals, and in an area such as the Orange Free State the demand for accommodation of Europeans is relatively small.

Among the constructive proposals made in the report is the suggestion that each province shall be divided for hospital purposes into a number of central areas. Under this scheme the Province of the Cape of Good Hope would be divided into six of these areas, and the Transvaal, Natal, and Orange Free State would each be divided into two. The Committee estimates that if its proposals are accepted a capital expenditure of over £2,000,000 on hospitals will have to be provided for the provinces over a period of four or five years. The approximate figures for each province are: Cape of Good Hope (including £90,000 for chronic sick), £950,000; Transvaal, £574,000; Orange Free State, £400,000; and Natal, £235,000. These estimates include the cost of building a new general hospital at Cape Town, the new hospital at Pretoria, and the new hospital at Bloemfontein; to the construction of which, it is understood, the Government is already committed in principle. Their erection will cost not less than £1,000,000. The Committee regards its proposals as minimal. Their adoption would not entirely solve the very unsatisfactory problem of the hospital service in the Union, which in three provinces particularly has been sadly neglected, but it would, at any rate, simplify the position of the Government if it ultimately takes over the control of the hospitals. The Committee believes that Government control is bound to come in view of the increasing body of public opinion which is in favour of it.

Native Medical Practitioners.

In order to bring European medicine within reach of the native population it has been suggested that facilities for the training of natives as medical practitioners are required. A committee appointed some months ago to consider this question has expressed the conviction that the needs of the native reserves and locations will not be met by providing for an influx of natives into the medical profession. Experience in other parts of Africa shows that it is exceptional for a native medical practitioner to be content to practise in his home surroundings. He nearly always drifts into a large town, and money spent on his education with the object of providing medical attention for his people in the bush is to a large extent wasted. It has been found impossible in practice to draft agreements that will bind such practitioners. Apart, however, from this consideration the committee thinks that it will not be practicable for many years to give native students facilities for full medical training in the

South African hospitals. It will even be a long time probably before native nurses can safely be given sisters' posts in the native wards of our large public hospitals, for native nurses in South Africa as well as elsewhere in the continent have been found lacking in initiative, and tend to become slack when not under close supervision.

Much to the disappointment of the profession the Medical, Dental, and Pharmacy Bill has been dropped for this session. This is due almost entirely to the amount of time taken up in the Assembly by discussion of the Flag Bill.

During the last few days of the Parliamentary session the Public Health Act Amendment Bill was passed in a truncated form—i.e., the more urgent clauses dealing with the more efficient administration of public health affairs on the alluvial diamond fields were passed, while the controversial clauses covering vaccination, hospital administration, and other matters were dropped.

The Administrator of the Cape has promised the appointment of two additional school medical inspectors for the Province, which will make four in all. There has been a great need for a long time for an increase in staff in this department.

In Cape Province a native woman recently gave birth to four sons and died in giving birth to a fifth. Two of the quintuplets survived.

The last few years have seen an alarming increase in the numbers of wild rodents in many areas. This is attributed partly to the extermination of the natural enemies of the rodents—i.e., the smaller cats, owls, and mongooses. The cats were destroyed for their skins. The greater ploughing of land and cultivation for grain and sweet grass make it easier for rodents to burrow and multiply.

BUDAPEST.

(FROM OUR OWN CORRESPONDENT.)

Definition of Patent Medicines.

HUNGARIAN law distinguishes between medicines concocted or mixed by pharmacists, specialties made by pharmaceutical manufacturers and sold only by the pharmacists, and patent medicines of the kind called in England secret remedies. In Hungary there is a turnover tax which is payable on medicaments. The tax is lowest, of course, on regular pharmaceutical preparations, and highest on the patent medicines, and in order to determine which specialty is a regular medicine and which a patent medicine, it has been necessary to lay down some definitions. The regulation states that by the term "patent medicine" (secret remedy) are to be understood such materials or preparations as are alleged to avert, cure, or mitigate any disease, suffering, deficiency, or morbid condition, or to increase or decrease certain bodily capabilities whenever (1) their composition, qualitatively or quantitatively, is kept a secret from the buyer; (2) their regular use might be detrimental to health or deters the user from employing actually valuable medicines or availing himself of efficacious medical help; (3) their selling price is disproportionate to their value; or (4) their advertisement is apt to cause misunderstanding.

Drug Addiction.

A committee on the control of drugs has been appointed by the Ministry of Health in order to decide how far physicians are justified in prescribing drugs such as heroin and morphine for drug addicts. The appointment of the committee is the outcome of continuous requests for guidance received from physicians in all parts of the country. Numerous cases have come to the knowledge of the authorities in which drug addicts have constantly obtained supplies of morphine, heroin, and other drugs on doctors' prescriptions. It is alleged that in some instances these prescriptions are given so that the drug victim may satisfy his cravings, and it is suggested that penalties be inflicted in such cases. For this new legislation may be necessary, but it is believed that the evil can be remedied by the issue of an authoritative statement, the question of penalties being left for the present in the hands of the medical associations.

A Case of Aspirin Poisoning.

Toxic symptoms following the use of the different preparations of acetosalicylic acid have often been reported, but a case recently encountered in a country town in Hungary has a special interest. Fifteen minutes after the ingestion of 1·0 g. aspirin, bought from a regular chemist, the patient developed swelling of the upper lip and deglutition became painful, whilst the pulse- and respiration-rates were much increased. The swelling soon extended to the entire head and was not relieved by cold applications, and somewhat later generalised urticaria made its appearance. On the following day the symptoms disappeared. It is suggested that the symptoms were due to carbolic acid poisoning resulting from the drug being split up in the stomach; the urine is said to have contained large amounts of this acid.

Excessive Heat in Hungary.

The summer heat this year has been considerable, the midday temperature being as much as 35° C. (95° F.) in the shade, the highest figure of recent years. Besides the ordinary inconvenience of hot weather, there are those arising from scarcity of water, particularly in provincial places where the supply is derived from wells. Rivers are almost dried up, and if the drought continues pollution of the remaining water and consequent spread of typhoid and dysentery are to be feared.

X Rays in Ophthalmology.

At a recent meeting of the Hungarian Ophthalmological Society Dr. Béla Horváth read a paper on his experiments on the treatment of certain eye diseases with X rays. He started his experiments two and a half years ago, and has treated 168 patients, the rays being applied on 288 occasions. The dose never exceeded one-third of an erythema dose, and no harmful action was observed. The patients thus treated suffered from many kinds of ocular diseases, including tuberculous conjunctivitis, trachoma, keratitis, chorioretinitis, scleritis, and iritis. As regards the results achieved, a considerable effect was noticed in tuberculous conjunctivitis with the formation of phlyctenules, although the effect on the subjective symptoms and the keratitis was even more pronounced. In trachoma both corneal ulcers and pannus receded quickly; in postoperative hæmorrhages the visual power improved to 5/15 within a few days, whilst in three cases of chorioretinitis the sight improved considerably. In fistulous or phlegmonous dacryocystitis and lymphatic keratoconjunctivitis the effect was variable. In ten cases of parenchymatous keratitis the cornea cleared up rapidly. Dr. Horváth also treated 62 patients suffering from iritis, the result being most striking in acute cases. Local treatment was, of course, employed as well. In a case of relapsing uveal hæmorrhage rapid improvement was noted.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

The General Prisons Board.

THE General Prisons Board of Ireland, and in recent years of the Irish Free State, consisted of three members, one of whom was always a medical man. For the past 15 years or so the medical member also acted as inspector of reformatories and industrial schools. A vacancy had recently occurred on the Board by the retirement of Dr. C. J. McCormick, and the Government has decided not to fill it. Instead of

appointing a medical member it is intended to have inspection of the prisons carried out by a medical inspector of the Department of Local Government and Public Health, and this decision has elicited protests from several medical bodies. It is pointed out that inspection of the prisons was by no means the only duty of the medical member of the Board. Being charged with equal responsibility with his colleagues in all matters of prison administration, he was in a position to make his wishes effective. A medical inspector who is in a subordinate position has no further responsibility once he has submitted a report, and he has no power to ensure that his advice is followed. It is suggested, indeed, that instead of medical influence in prison administration being diminished, it ought rather to be increased and that the study of criminology from a scientific point of view should be encouraged.

MEDICINE AND THE LAW.

Marriage of Blood Relations.

THERE must be some eugenic principle in the mind of a man who seeks to prevent his descendants from marrying blood relations. But, if he tries to enforce his wishes by imposing conditions in his will, he must be careful to frame them in such a way that the law courts will support him. A testator left residuary estate to his son for life and after the son's death to the son's children "provided he does not marry a relation by blood, as I wish to mark my great objection to marriage between blood relations." The son, a bachelor aged 37, took the opinion of the Court of Chancery as to whether he would lose his life interest if he knowingly or unknowingly married a blood relation, and whether the limitation upon his choice of a bride had any legal validity. The court had no difficulty in answering that the son's life interest was safe in any event, but it found the second question more puzzling. Blood relationship could not refer merely to the statutory next-of-kin but must describe the relationship existing between any two or more persons who stood in lawful descent from a common ancestor. The chain of descent might be broken by illegitimacy, but, subject to that qualification, all persons descended from a common ancester were blood relations, however many centuries ago the common ancestor might have lived. The restriction in the will was such that it would be difficult, perhaps impossible, to ascertain definitely that any particular woman was not a blood relation. The son would know when he was marrying a blood relation; he would never be certain he was not doing so. A provision which produced these results was one likely to lead to a restraint upon marriage. Public policy requires that there should be no prohibition on marriage. On this ground the judge pronounced the condition in the will to be void. The law reports contain decisions whereby conditions imposing a partial restraint upon marriage have been held to be perfectly valid. A condition against marriage with any person born in Scotland or of Scottish parents has been upheld as valid. So also has a clause which provided for forfeiture in the event of marriage with a person who did not profess the Jewish faith or was not born a Jew. These cases may seem tainted with unreasonable prejudice, but the judges have declined to interfere as the restraint is only partial. The prospective bridegroom is still left a large field of choice in the female world. A condition against marrying a blood relation is regarded as rather more than a mere partial restraint. It is unreasonable because it is so comprehensive and so uncertain; it might tend to deter a man from marrying at all.

LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE.—As a result of the sessional examinations of the Division of Tropical Medicine and Hygiene, Dr. R. Aird has been awarded the Duncan medal.

The Services.

ROYAL ARMY MEDICAL CORPS.

Capt. F. C. Tibbs to be Maj.

The undermentioned Capts. to be Majs. (Prov.): F. R. H. Mollan, G. O. F. Alley, A. J. Beveridge, and D. Fettes.

Majs. R. E. Todd, D. B. McGrigor, F. T. Dowling (granted the rank of Lt.-Col.), and J. F. Grant retire on retd. pay.

TERRITORIAL ARMY.

Lt.-Col. G. H. L. Hammerton (Supern.) is retd. on reduction of estabt. and retains his rank with permission to wear the prescribed uniform.

Lt.-Col. W. Lister to be Bt. Col.

Lt. E. G. Oastler, from the Supern. List for service with O.T.C., to be Lt.

N. R. Rawson, late Temp. Capt. R.A.M.C., to be Lt.

H. S. Davies to be Lt.

ROYAL AIR FORCE.

Flying Officer G. A. Ballantyne, D.F.C., is promoted to the rank of Flight Lieutenant (Dental) on promotion to Captain in the Army Dental Corps.

Flight Lt. J. J. Walsh is transferred to the Reserve, Class D.1.

INDIAN MEDICAL SERVICES.

Lt.-Col. W. S. Willmore to be Col.

Temp. Capt. A. H. Ernst relinquishes his temp. commn.

Lt.-Col. L. P. Stephens retires.

Lt.-Col. T. E. Fielding to be officiating A.D.M.S., Poona District, Secunderabad, vice Col. H. Boulton, on leave. Maj. M. J. Williams to be D.A.D.M.S., Peshawar District, vice Maj. B. Johnson, vacated. Maj. E. B. Wade to be officiating D.A.D. of Hygiene, Lucknow and Presidency and Assam Districts, vice Maj. E. G. S. Cane, granted leave. Capt. H. T. Findlay to be Officer in Charge, Brigade Laboratory, Ambala, vice Maj. R. Davidson, vacated. Lt.-Col. D. O. Hyde to be officiating A.D.M.S., Burma District, vice Col. V. J. Crawford, on leave. Maj. E. W. Kirwan to be Superintendent, Campbell Medical School and Hospital, vice Lt.-Col. W. Harnett. Col. J. Norman Walker, Surgeon to the Viceroy, to be Inspector-General of Civil Hospitals, Central Provinces, vice Col. K. V. Kukday. Lt.-Col. S. G. S. Haughton to be officiating A.D.M.S., Kahat District, vice Col. W. O'S. Murphy, on leave. Lt.-Col. Wingate to be officiating A.D.M.S., Rawalpindi District, vice Col. A. Choppling, on leave. Maj. M. L. C. Irvine, specialist in medicine, C.P. District, has been appointed to Kamptee and Jubbulpore for temporary duty. Maj. MacGregor to be Agency Surgeon, Bushire, vice Maj. M. S. Nicholson, on leave. Capt. N. R. Obhaya, Assistant Director of Public Health, to hold full charge, vice Dr. K. T. Mathew, on leave. Lt.-Col. A. S. Leslie to act as First Physician General Hospital, and Professor of Medicine, Medical College, Madras. Maj. N. M. Mehta to act as Civil Surgeon, Coonoor, vice Lt.-Col. A. S. Leslie, transferred. Dr. Mathra Dass to be officiating Civil Surgeon, Jullandar, vice Lt.-Col. Kanwar Shamshere Singh, on leave. Dr. Tej Chandra Pramanic, officiating civil surgeon, Shahabad to Purulia, to act as Civil Surgeon, Manbhum, vice Dr. B. P. Varma, on leave. Dr. Baini Prashas to officiate as Director, Zoological Survey, Central Provinces, vice Maj. Seymour, on leave. Dr. Mehdi Khan, medical officer in immediate charge, Sadr Hospital, Hamirpur, to officiate as Civil Surgeon, vice Khan Sahib Dr. Muhammad Ismail Khan, on leave. Dr. Ram Sarup Gupta, medical officer in immediate charge, Prince of Wales Hospital, Cawnpore, to officiate as Civil Surgeon, Cawnpore, vice Lt.-Col. H. Ross, on leave. Dr. Lachmi Narayan, medical officer in immediate charge, Sadr Dispensary, Ghazipur, to officiate as Civil Surgeon, Ghazipur, vice Dr. Balahadra Singh. Dr. M. Noronha to be Honorary President Magistrate, Bombay.

NORTH PERSIAN FORCES MEMORIAL MEDAL.

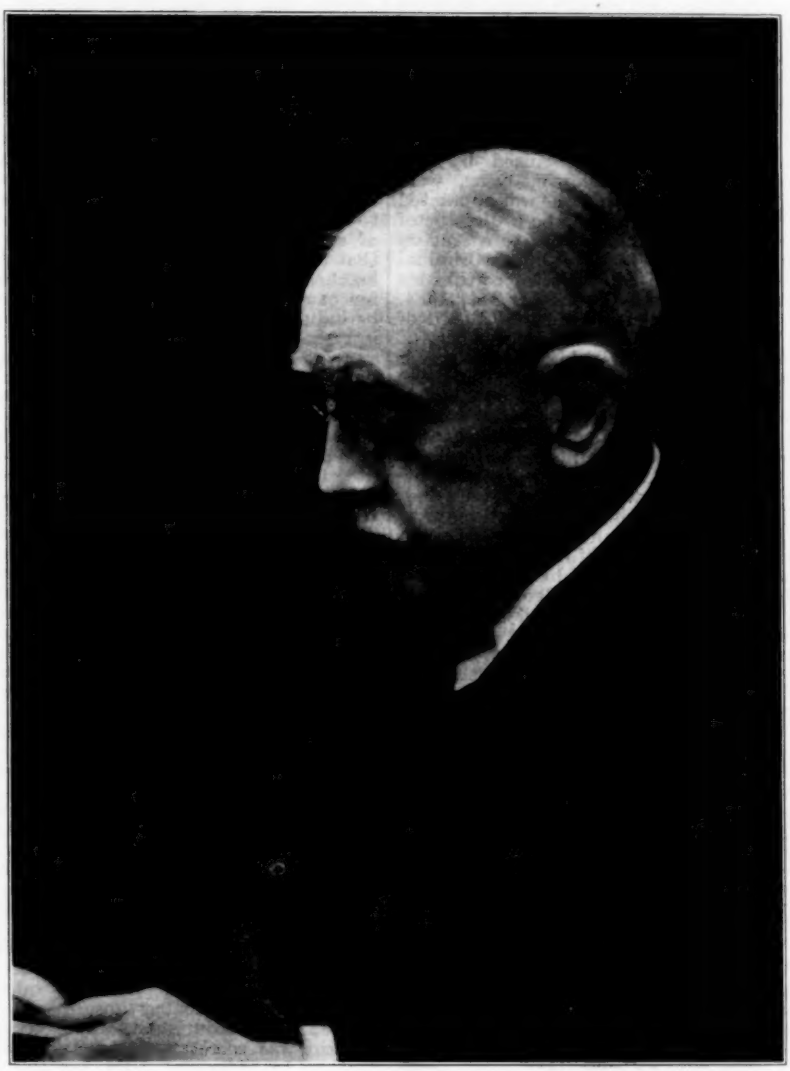
Dr. A. Neave Kingsbury, Colonial Medical Services, has been awarded the North Persian Forces Memorial Medal for the year 1926 for his paper, Some Investigations of Malarial Fevers, published in the Transactions of the Royal Society of Tropical Medicine and Hygiene (vol. xix., No. 8, February, 1926, pp. 459–481). This medal is awarded annually for the best paper on tropical medicine or hygiene published in any journal during the preceding 12 months by any medical officer, of under 12 years' service, of the Royal Navy, Royal Army Medical Corps, Royal Air Force, Indian Medical Service, or of the Colonial Medical Service, provided the Memorial Committee consider that any of the papers published has attained a standard of merit justifying an award.

Obituary.

HORATIO BRYAN DONKIN, M.D. OXF., F.R.C.P. LOND.,

CONSULTING PHYSICIAN, WESTMINSTER HOSPITAL.

WE deeply regret to record the death of Sir Bryan Donkin, the well-known physician and criminologist, which occurred at his house in Hyde Park-street, London, on July 26th, in the eighty-third year of his age.



SIR BRYAN DONKIN.

Bryan Donkin was the son of a civil engineer of the same name and the grandson of Bryan Donkin, engineer, astronomer, and inventor, who designed, among many other activities, the first paper-mills. He was born at Blackheath in 1845 and received his early education at Blackheath Proprietary School, whence he went to Queen's College, Oxford, as an open scholar, to graduate in the first-class of the classical tripos. The knowledge of "the humaner letters," though never obtruded by him, informed his thought and his writings throughout his life, and to the same intensive study may be attributed the close and often destructive logic of his arguments.

His first intention was to go to the Bar, but he altered it in favour of medicine and took his medical education at St. Thomas's Hospital, where he served as house physician; he graduated M.B. in 1873, becoming M.R.C.P. Lond. in the following year, when he was elected assistant physician to the Westminster Hospital. By many generations of Westminster men he will be remembered as a clear teacher and an excellent clinician, but his earliest special mark in the medical profession came from his association with the East London Hospital for Children, where he had been elected physician a little previously. As the outcome of his work there he published some 35 years ago a treatise on diseases of childhood, which was based to a great extent on the records and recollections of nearly 20 years' service at the East London Hospital, and the work was recognised at once as a distinct addition to the current books on pediatrics—it was in every sense original, remarkably well written, and founded on large experience, both general and special. Later, however, his name became definitely associated with neurological investigation of a broad sort. He wrote in the medical journals and particularly in *Brain* essays that were clinically sound while philosophical in their trend, and he became known especially in connexion with criminology and psychological investigation. In 1904 he was a member of the Royal Commission appointed to consider the measures for the control of the feeble-minded, and from that time on he was a member of various departmental committees appointed by the Home Office.

From this time forward his lectures and contributions to medical and general literature were many, dealing with such allied subjects as the influence of heredity in mental disease, the part played by venereal contaminations in mental pathology, and the connexions between disease and crime, between fraud and spiritualism, and between faith and credulity. His contributions on these subjects were of the greatest value in producing logical views in many regions of thought where temptation to obscurant mysticism was being manifested. He was both in these writings and in the discussions which they would often elicit, downright in his methods, and where he was dealing

with scientific processes that are still in flux, he might give the impression of intolerance; but he was an absolutely fair man, writing as he saw, and putting out only such views as he believed himself able to justify not only out of wide reading, but especially out of ample personal experience.

Donkin was appointed a Prison Commissioner in succession to Captain W. J. Stopford on Oct. 1st, 1898, and in accordance with a recommendation of the Gladstone Committee on Prison Reform that there should always be a medical man on the Board of Prison Commissioners. He was an active member of the Royal Commission on the care and control of the feebleminded (1908), the outcome of which was the Mental Deficiency Act of 1913, which has had such beneficial effect in causing the removal of mental defectives from the unsuitable environment of prisons to certified institutions. He retired on Feb. 1st, 1910, on attaining the age of 65, but his valuable services, which were recognised by the knighthood conferred in the following year, were not lost to the Prison Commission, for he was appointed medical adviser to the Board and to be a director of convict prisons; this post entitled him to a seat on the Council of Supervision for Parkhurst Criminal Lunatic Asylum and to sign as a director certificates of insanity under the Criminal Lunatics Act, 1884. In addition he was made a member of the Board of Visitors for the State Inebriate Reformatory at Aylesbury, a member of the Visiting Committee of the Borstal Institution at Aylesbury, and a member of the Advisory Committee at Camp Hill in the Isle of Wight, a prison for men undergoing sentences of preventive detention. He was actively engaged in the duties of the last appointment until quite recently.

From "G. B. G.," of the department of the Home Office, with which Donkin was so long connected, we have received the following appreciation of a regretted colleague: "Sir Bryan Donkin's reaction on the prison staff from the date of first appointment as Commissioner was profound, and his wide general culture combined with his knowledge of general medicine, nervous diseases, and insanity increased that influence as the years went on. He was equable and kindly but firm as an administrator, and his opinions on medical subjects was universally welcomed by medical officers. He was keen to the last and it was a joy to discuss with him some point in ethics or psychology He had no use for psycho-analysis as his remarks in McBride's 'Psycho-analysts Analysed' show. The members of the Prison Service have lost a much loved friend and adviser, and the thought of one at least who stood at Sir Bryan's graveside on Friday morning last and who had known him intimately for nearly 30 years was that he had now solved the great problem on which we had had so many conversations. Sir Bryan had been obviously failing in health for the last year or so, and the Prison Service desire to tender their respectful sympathy on her loss to Lady Donkin, whose unremitting care enabled his friends to enjoy the benefit of his keen intellectual powers to the end."

Donkin's connexion with the Royal College of Physicians of London was intimate and important. He was elected F.R.C.P. in 1880, served on the Examining Board for three years, was a Councillor for the same length of time, and in 1910 was appointed Harveian Orator, when he delivered an oration on the inheritance of mental characters, showing exactly that catholic spirit in scientific inquiry for which he always stood. Harvey said: "The son is born like his parents, and virtues which ennoble and vices which degrade a race are sometimes passed on to the descendants through a long series of years." The considerateness and conciseness with which Dr. Donkin treated the vast questions arising from such a theme were recognised by all who read this Oration, in which will be found the theories of crime and the conceptions of the nature and temperament of criminals on which he relied in his various directions of public work.

Many of the special circumstances in his Government appointments, as well as the general fact of his long career as a hospital physician, conspired to give Donkin a deep interest in syphilitic problems in their widest sense; he approached them from the sociological as well as the pathological side. He thus became a vigorous supporter of his conviction, shared by many others, medical and lay, that medical men should make known to their patients those means of prophylaxis against venereal infections with which science has of late years supplied us. Consequently when some ten years ago the association termed the National Council for Combating Venereal Diseases —now the British Hygiene Social Council—was embarrassed by strongly divided opinions on this question, Donkin became alike the most eloquent and the most logical of those who held other views. He thought that medical men were hampered in giving this information by mediæval doctrine, leading them to regard sexual disease from a different standpoint from that which they maintained towards all other diseases. He did not minimise the force of moral or religious instruction, but, as he did not consider that these factors would operate successfully to a considerable extent in checking the gratification of sexual instinct by irregular intercourse, he held that the dissemination of the venereal diseases should be checked by the promotion of effectual prophylaxis for exactly the same reasons as those which would be induced as the arguments for preventive measures in respect of other diseases.

From his life-long friend, Sir Seymour Sharkey, we have received the following tribute: "I first made Donkin's acquaintance in 1873, when he was house physician to Dr. Murchison at St. Thomas's Hospital, and acquaintance soon ripened into friendship which lasted as long as he lived, for Donkin was a trusty friend, loyal and affectionate, whose ardour could cool only under very exceptional circumstances. Having won an open scholarship at Oxford and later taken a first-class in "Greats," he possessed a very solid foundation on which to build a career, and being a great reader and interested in most human affairs he naturally became a very interesting companion. He was fond of conversation and of comparing his views with those of others. He formed very definite opinions and supported them keenly, but without dogmatism. To hear him conversing with women, which he was very fond of doing, even on difficult subjects, was a lesson in good breeding. He spoke with as much care and consideration as he showed to men, but treated them with infinite gentleness and so gained many a devoted friend and admirer. On public questions where his opinions were directly opposed to those of his friends he could carry on a long debate without creating bitterness. Donkin was a man who had his heroes and chief amongst these was the late Sir Samuel Wilks. He took the leading part in the foundation of a small dining club, with Wilks as its first president, which met three times a year and was called the "Fifteen Club," and after Sir Samuel Wilks's death the "Samuel Wilks Fifteen Club." The members consist of eminent surgeons and physicians on the staffs of the great London teaching hospitals. It was founded in 1885 and is flourishing now in its forty-third year. Donkin was secretary from its foundation until his death. In February, 1924, on the proposal of Sir Thomas Barlow he undertook to write a short history of the club, a task which he accomplished in 1926."

Donkin married first Augusta, daughter of Count di Langhi, a Polish lady, and the widow of Prof. Edward Palmer, the oriental scholar; he married secondly, late in life, Marie, daughter of William Reston, of North Carolina, and widow of Mr. W. I. Bates, of Belfast. In private and in club life he was a man of many friends, to whom his qualities of force and sincerity appealed. At the Savile Club he will be especially missed, for he was a member of very long standing, and with many close ties to his fellow-members. Despite his age and the effects of a recent and severe illness he maintained good health till the end, the terminating phase being short.

CHARLES THEODORE WILLIAM HIRSCH, M.R.C.S. ENG.

Dr. Charles Hirsch, who died rather suddenly on July 28th after an operation, was 58 years of age. He was born in London, educated at King's College and the London Hospital Medical School, and qualified L.S.A. in 1890, taking the conjoint qualification a year later. After holding a resident appointment at the North-Eastern Hospital for Children and assisting in the ophthalmic clinic at the London Hospital, he went out to Fiji as a medical officer under the Colonial Office. While there he conducted a careful inquiry into a form of pernicious anæmia very prevalent in the islands, the origin of which he attributed to the absorption of intestinal toxins acting upon the liver and giving rise to a condition of chronic hæmolysis. On returning home after six years he settled in Woolwich, where he entered into partnership in a general practice, was elected to the staff of the Woolwich and Plumstead Cottage Hospital, and became civil surgeon to the Royal Arsenal. At the same period he was divisional surgeon to the Metropolitan Police, a district medical officer of the Metropolitan Water Board, and a medical referee of the Royal Arsenal Coöperative Society. At this time, too, he was an enthusiastic supporter of the movement for first-aid, and lectured for the St. John Ambulance Association and at the L.C.C. evening schools. For some years he was surgeon to the training ship *Warspite*.

On the outbreak of war in 1914, Dr. Hirsch held a captaincy in the Home Reserve of the R.A.M.C., and became anæsthetist to the Royal Herbert Hospital, Woolwich, and later to the Military Orthopædic Hospital at Shepherds Bush. The arduous work undermined his health and he had to undergo a serious abdominal operation from which he narrowly escaped with his life. After the war he devoted himself exclusively to anæsthetic work, and was honorary officer to no less than nine hospitals—namely, the London Temperance, the Grosvenor and Samaritan for Women, the Metropolitan Nose, Throat and Ear, the Western Ophthalmic, the National Dental, the Maida Vale and West End for Nervous Disease, and the Royal Ear. This work would have been sufficient in itself to occupy the energies of a strong and vigorous man, for he was most punctilious in carrying out his duties at all of them, but in addition he was greatly in demand for private anæsthetics. Outside his professional work Dr. Hirsch was a keen motorist, and was always well informed upon the latest in technical equipment. Writing on motor-car matters became a hobby to him and for many years he kept readers of THE LANCET in touch with them. Of his personal qualities a surgeon friend writes: "Dr. Hirsch was a most capable, careful, and helpful anæsthetist, sympathetic to his patients and always on the alert to try new methods and improve old ones. He was an admirable teacher and many post-graduates have cause to remember with gratitude the lessons they learnt from him. Nothing was too much trouble for him. At all times of day and night, whether for hospital or private work, he was the same cheery willing worker."

On July 25th, after a full day of hospital work, he had a recurrence of his old symptoms and died shortly after operation two days later. He leaves a widow and one daughter.

HOSPITAL SUNDAY FUND.—This Fund will amount on August 9th to £79,100, and the committee recommend the distribution of £79,000. Grants made include: London Hospital, £7080; Middlesex and Convalescent Home, £4475; Guy's, £3270; St. George's, £3200; St. Thomas's, £3065; University College, £2465; Royal Free, £2325; Royal Northern, £2150; King's College, £2080; Westminster, £1750; and Charing Cross, £1660. The report states that 7½ per cent. of the total sum available for distribution has been appropriated to the purchase of surgical appliances, and 2½ per cent. for district nursing associations.

BRITISH AND AMERICAN NEUROLOGISTS.

MEETING IN LONDON.

(*Continued from p. 259.*)

THE joint meeting of the American Neurological Association and the Section of Neurology of the Royal Society of Medicine was continued on Wednesday, July 27th, when the morning was devoted to a discussion on

THE CEREBELLUM.

Dr. H. A. RILEY (New York) presented a paper by himself and Dr. FREDERICK TILNEY (New York) on the comparative morphology of the cerebellum, first demonstrating charts and models of the inferior olive and its connexions, and particularly the lateral expansions of the cerebellum in the primate series. He had gathered as many forms as possible in the mammalian series in order to show a correlation of the arbor vitæ with the physical form of the animal concerned, and the patterns of cerebellum shown on the screen represented an evolutionary series. The following conclusions had been reached: (1) The modification of Bolk's cerebellar diagram and scheme showed a division of the anterior lobe into definite vermal and hemispheral portions. (2) The division of the cerebellum into an anterior and a posterior lobe was sufficient; no useful purpose was served by adding a middle lobe. (3) The arbor vitæ and folial patterns showed that the most cephalic and the most caudal portions of the vermis underwent the least degree of significant modification. (4) The ungulates developed a paravermis in lobule C and lobule B. (5) The aquatic mammals showed a very striking uniformity in the development of the lobulus paraflocculariis, and this might be associated with the specialisation of the axial and appendicular musculature for the particular type of progression required for life in the water. (6) It was quite possible to homologise the various subdivisions of the human cerebellum with the accepted constituents of the schematic cerebellar patterns. (7) The sulcus horizontalis magnus seemed to be the homologue of the sulcus intercruralis. (8) No definite statement could yet be made as to functional localisation in all the lobules of the cerebellum. (9) The study offered but little confirmation of the accepted functional capacities of the anterior lobe of the cerebellum. (10) Lobulus 4 and lobulus C, with their associated hemispheral expansion, showed the greatest progressive differentiation and efflorescence. It was definitely associated with the part played by the cerebral cortex in its influence over cerebellar unfolding, and might be correlated with the perfection of the patterns for skilled movements and unilateral independence of the fore and hind limbs. (11) Elaborations of this study might present material of value in further attempts to establish functional localisation in the cerebellum.

Dr. L. J. POLLOCK (Chicago) read a paper by himself and Dr. L. DAVIS on the physiology of the cerebellum. It set out the results of a series of studies on reflex patterns obtained from animals which had been de-cerebrated by an anæmic method. The paper was illustrated by the kinematograph.

Dr. A. T. MUSSEN (Baltimore) set out experimental results, also by moving pictures.

Dr. T. H. WEISENBURG (Philadelphia) dealt with the clinical aspect. He said there was no more controversial subject in neurology to-day than the function of the cerebellum. The same remark also applied, to some extent, to the interpretation of symptoms arising from lesions of this organ. The reason for this lay, in part, in the nomenclature used to describe local disturbances arising in cerebellar disease. Rarely did two authors employ the current terms to convey exactly the same meaning. The chief reason for this was that cerebellar disturbances were manifested in disordered movements, and those movements did not lend themselves to easy description. When he began to study movements with the kine-

matograph he found that his clinical interpretations had been no more than general impressions. There was, he thought, abundant clinical evidence that cerebellar localisation existed. Most authors seemed to be content if they diagnosed a cerebellar lesion, without particularising further. In his own cases he had made more errors where the cerebellar symptoms were obvious—e.g., in tumours of the third ventricle or tumours accompanied by intracranial pressure with involvement of the cerebellum—than in cases showing limited cerebellar functions. In the latter he had made a focal diagnosis, which had been confirmed post mortem. It was often said, in connexion with the cerebellar gait, that it made little difference whether the eyes of the patient were open or closed. He had asked a cerebellar patient to walk across the stage with his eyes open, and found that the patient instinctively corrected his gait by his sight and hearing. When blindfolded he corrected the gait by his hearing. When the patient was blindfold and absolute silence was observed the true cerebellar gait at once became manifest. Moving pictures had enabled him to differentiate various kinds of gait. From the peculiarities of the gait he considered that certain clinical deductions were justifiable. When trunk movements were involved it meant there was a lesion in the thalamus; when the patient staggered backwards probably the anterior or inferior portion of the thalamus was implicated. If the upper part of the trunk was involved the lesion was probably in the superior vermis. He had not seen any instance of the lesion being limited to the right or left lobe. In cerebellar patients it was possible to find dysergia of the arms and legs alone; he had seen cases in which disturbances of arms and legs occurred without involvement of trunk. He agreed with Hughlings Jackson that the cerebellum did not act alone, but functioned in association with other levels and in conjunction with the lower levels in the spinal cord. There was, he contended, a difference in the symptoms of a case according to the lesion present.

Dr. LAURETTE BENDER spoke of her researches in Holland on localisation of control of the vocal cords. In the normal dog, before operation, the vocal cord movements were seen to correspond with the respiratory rhythm. Accessory movements not synchronous with respiration could be demonstrated immediately after the operation and disappeared a little later. The dogs were allowed to live 18 days after their recovery, and when their brains were examined lesions were found in the vermis and the roof nuclei and in the tissues surrounding the fourth ventricle. It was concluded that lesions in the cerebellum could produce disturbances of the cerebellar ataxic type in vocal cords, but these did not occur unless the lesion involved the tracts connecting the cerebellum with the medulla. Control of the vocal cords was not localised to any particular part of the cortex or the roof nuclei.

Discussion.

Dr. F. M. R. WALSHE (London) said that the outlook on the problem of cerebellar function was now distinctly more hopeful. The best knowledge on the sensitive component of the cerebellar functions was due to Gordon Holmes. It had been necessary to rule out volition and study the behaviour of decerebrate animals, and it was to the study of such decerebrate animals that the profession owed what knowledge it had gained. The cerebellum was not responsible for regulation of tone, posture, or equilibrium, and there was no cerebellar ataxy. A close functional relationship had been found between the cerebellar and the cerebral cortex, and it might be that the cerebellum found its function in the process of synthesis and analysis.

Dr. GORDON HOLMES (London) said that defect symptoms of the cerebellum could only be obvious when the brain was intact, and the functions of the cerebellum, looked at clinically, must be closely related to those of the fore-brain. He held that nystagmus was a relatively constant symptom of cerebellar lesions, and that it could proceed from a lesions in the cerebellum alone. Some time ago he had collected all the cases of local lesion of the cortex of the cerebellum which were recorded in the notes of the National Hospital, Queen-square; there were about 20 of them, and he was unable to discover evidence of focal representation of parts of the body in the cortex of the cerebellum, though there was no doubt that when the vermis and mesial portions of the cerebellum were injured there was a greater tendency to disturbance of speech and trunk movements and attitudes. In no case had he ever found definite evidence that a local lesion of any portion of the lateral lobes would produce exclusive, or even predominant, affection of arm or of leg, though there was no doubt in his mind that a cerebellar lesion affected the upper limb more than the lower. Still, affection of isolated movements of the lower limb was a cause of disturbance of gait, not characteristic nor invariable, but common in local cerebellar lesions.

Dr. KINNIER WILSON (London) said that skew-deviation of the eyes was a comparative rarity in cerebellar disease, but was occasionally seen. Early in his work at Queen-square he had photographed a case with skew-deviation which had come on after an operation performed on the same day by Sir Victor Horsley. That deviation Horsley had attributed to a lesion of the superior peduncle. By skew-deviation he meant one eye going down and in and the other going up and out. It had always seemed to him that this movement was such as might be expected if the eyes were turned in order to correct an apparent movement of the head. It was almost impossible to get this in the human subject, excepting under pathological conditions, but he showed a toy dog whose head would move though its eyes were fixed. If this toy were tilted to one side the eyes took up the position of skew-deviation. The lesson of that was that if for some reason the head did not move, under pathological conditions, deviation of eyes was a compensatory movement.

CLINICAL MEETING.

At a clinical meeting on Wednesday afternoon Sir JAMES PURVES-STEWART (London) showed a boy, aged 18, who had a Blood Cyst Located by Pneumoradiograms. At 12 years of age he had cerebral concussion after falling on the ice, and four months ago he had developed headache and diplopia with no apparent cause. Visual acuity was not diminished, but the optic discs were somewhat blurred. There was paresis of the right external rectus and of the left side of the face. The optic discs swelled progressively and the blind spot in each eye was slightly enlarged. Pneumoradiograms showed displacement of the right lateral ventricle towards the left. Therefore a wide decompression was done in the right frontal area, and a subdural cyst the size of a turkey egg, containing black and altered blood, was evacuated. Since that operation the clinical improvement had been uneventful.

Dr. GORDON HOLMES showed a boy, aged 14, who habitually fell on hearing a noise. He came of healthy stock, no member of the family had a similar affection, he always had good health, and had always done well at school. At 5 years of age he was observed to fall on hearing an unexpected noise or on being startled, even on being suddenly touched from behind. He often sustained fractures on these occasions. There was no change of colour, vertigo, or giddiness; his limbs suddenly flexed and he fell, but he could usually rise at once without assistance. Treatment by means of thyroid, pituitary, bromide, and luminal produced no benefit. A radiogram revealed a rather small sella turcica. He was unnaturally fat, but took little exercise. His skin was rather hairless, but the sexual organs were well developed. When in hospital he had an epileptic attack during sleep, the eyes deviating to the right. He did not lose sphincter control nor bite his tongue, but sometimes he had some soreness of his tongue in the morning. A gun fired behind him at the meeting did not cause him to fall.

Dr. W. J. ADIE said he had long been interested in all kinds of sudden attacks, but had seen nothing like those of this patient. He did not think Dr. Holmes's

case was one of narcolepsy, in which if the patient saw the funny side of something and laughed heartily he fell. Anger and annoyance also caused falling. Neither had this boy any attacks of inevitable sleep. Thomsen's disease might cause sudden falling of this kind. The case seemed to be in a class by itself.

Dr. WEISENBURG pointed out that these patients could resist the manifestation of their peculiarity if unusual circumstances were present, such as those at the meeting; he had experienced the same peculiar denial in emotional cases.

Dr. C. L. DANA (New York) said he had seen a number of cases similar to this and had termed the condition "falling sickness." He felt sure that they were epileptic in type.

Dr. C. P. SYMONDS (London) showed a boy, aged 12, with Schilder's encephalitis. At 2 years of age he began to have fits, which, the mother said, usually began as convulsive twitchings of the right side of the face, the right arm, and leg; the twitchings became generalised and the patient lost consciousness. He seemed to be mentally backward and was nervous. No other signs developing, he was discharged with the diagnosis of Jacksonian epilepsy. In July, 1919, he was readmitted as he had had a left-sided Jacksonian attack. It was then seen that he had optic atrophy with defective vision, especially in the lower part of the fields. Cerebral tumour was provisionally diagnosed, and he was discharged. In September, 1922, he had a series of convulsive attacks, chiefly on the right side. A younger brother had died of Schilder's disease, as proved post mortem.

Dr. ADIE showed three cases. The first was one of Familial Periodic Paralysis. The patient was a boy of 13, who often on waking in the morning was unable to move hand or foot or to speak. Gradually the weakness passed off, the passing occupying from three to four hours to two days. The number of attacks averaged about one a fortnight. The father had had similar attacks since the age of 4.

The second was a case of Myasthenia Gravis in a boy of 10. The onset, two months ago, was rapid. There was double vision and a generalised weakness of all voluntary movements. There was no muscular wasting nor fibrillation. The tendon responses were all much diminished and the plantar responses were plantar flexor. X rays did not show any enlargement of the thymus.

Dr. BERNARD SACHS (New York) suggested that a skiagram be taken through the open mouth so as to determine whether there was a fracture of the odontoid process. He quoted a case with similar symptoms in which such a fracture was found.

Dr. DOUGLAS MCALPINE (London) showed a case of Syphilitic Amyotrophy in a woman aged 53. Sixteen years ago the patient noticed a weakness of her ankles, in consequence of which her feet gradually dropped, to the accompaniment of cramp-like pains in the legs. Thirteen years ago the left hand, and later the right, became weak in the same way, and the muscles of the hands became wasted. No history could be obtained of tabetic pains, diplopia, or sphincter disability. The onset suggested a polyneuritis.

Dr. DANA said he had seen several cases of locomotor ataxy develop typical progressive muscular atrophy.

Dr. W. B. CADWALADER (Philadelphia) said that many patients with chronic tabes of the extreme ataxic type had considerable muscular wasting, and many were alcoholic. In some there was doubtless an alcoholic multiple neuritis superimposed on the syphilitic process.

Dr. ANTHONY FEILING (London) showed a case of Mimetic Facial Paralysis. The boy, aged 8, showed an unusual condition of defective innervation of the muscles of the right side of the face. He preserved voluntary power to innervate his facial muscles on both sides, but there was nearly complete paralysis of movement on the right side of his face for emotional expressions. If he were asked to show his teeth he involuntarily screwed up both eyes equally well.

Mr. LINDSAY REA (London) showed patients with extra-ocular paralysis of sudden onset. There were, he said, two types, one of them "rheumatic" and seen chiefly in young women. The first patient had three attacks which cleared up with salicylic acid; then, as that failed, her teeth were seen to, and she had not had another attack in the intervening three years. In the other type, with similar manifestations, the blood pressure was always raised.

Thursday morning was devoted to a discussion on

SENSORY DISORDERS IN ORGANIC DISEASE OF THE NERVOUS SYSTEM.

In view of the illness of Sir Henry Head a message was sent to him referring to his classical contributions to the knowledge of the sensory nervous system.

Prof. J. S. B. STOPFORD (Manchester) said that his experiences favoured Head's interpretation of cutaneous sensation, but he thought that some modification of that authority's views were necessary in regard to deep sensibility. Deep sensibility did not seem to be in accord with any other of the divisions of cutaneous sensation, nor to represent any stage in the phylogenetic history of sensation. This was because more had to be learnt about deep sensibility; there were two stages, comparable to those seen in cutaneous sensibility. After the division of a posterior root an intermediate zone was found in which protopathic sensibility was lost and epicritic sensibility was retained, the reverse of what was seen after division of a peripheral nerve. There was strong evidence that two distinct and independent systems existed, and it was possible for one group of elements to be retained and the other lost. And recovery after successful suture of a peripheral nerve took place in two stages. He had never yet seen a perfect recovery of epicritic sensibility after secondary suture which involved resection of a piece of the nerve trunk. In some parts of the body one of the systems alone was present—e.g., in the glans penis, where there was only protopathic sensibility. If definite pressure was exerted on the glans pain suddenly emerged, of a diffuse and very disagreeable type.

Dr. WILFRED HARRIS (London) dealt with sensory disorders due to spinal and brain-stem lesions. He said that lesions of the posterior columns and the anterolateral and anterior columns, as well as of the central grey matter and posterior root-zone, caused sensory changes of various kinds. Gunshot or stab wounds might be limited to one side of the cord or to the posterior columns, or they might afford useful evidence in the differentiation of function of the afferent spinal tracts. In the slighter cases of myelitis, or in the recovering stage, differentiation of sensation was often met with. Total anæsthesia to all forms of tactile sense—pain, pressure, and temperature—was rare in association with cord lesions, except in acute softening, ascending myelitis, tumour, wounds of the cord, or fracture-dislocation. Pain and temperature might be more involved than tactile sensation, and frequently the Brown-Sequard syndrome might be demonstrable. Excessive sensitiveness to a scratch might be seen at a stage of protopathic recovery of an injured nerve, and paræsthesia, tingling, numbness or formication of the legs were common.

Dr. GORDON HOLMES discussed sensory lesions due to spinal and cortical lesions. He said that Head and he had come to the conclusion that there were many qualities of sensation which could come to consciousness without the intervention of the cortex, and these were attributed to the optic thalamus. Certain portions of the brain-stem could also be engaged in it. Certain qualities of sensation were never completely abolished by a cortical lesion, and this was particularly true of pain. In many extensive cortical lesions there was an alteration to sensibility to pain over the corresponding areas of the body. In intelligent patients it could be proved that it was really in the nature of a qualitative change. He believed that the actual sensation of pain was never lost. Sometimes associated with typical cortical loss hysterical phenomena were encountered. With tactile sensi-

bility the question was more difficult, and some reliable form of æsthesiometer was required. Hallucinations were frequent and tended to vitiate the inquiry. Sometimes on ceasing to touch the patient he would delay his indication of the fact for seconds, even minutes. He thought the explanation lay in the fact that the normal cortical inhibitions of the thalamus had gone, whilst the lower subcortical levels remained in an active state; in other words, it was a release phenomenon. Dr. Holmes appealed for a more common use of the compass-test in examining ordinary cases of suspected cerebral disease; he had found it very important. He had had four cases recently in which it showed the only form of sensation which was disturbed. In three of those the lesion was near the apex of the hemisphere.

Head recognised three functions of the cerebral cortex: (1) appreciation of relationships in space; (2) faculty of reacting appropriately to stimuli of differing intensity; (3) recognition of similarity and difference. As to the part of the cortex which was concerned with sensation, Dr. Holmes said he did not think any portion of the cortex in front of the fissure of Rolando had any direct sensory functions. He considered that the sensory cortex extended considerably backwards to the anterior limb of the supramarginal gyrus. The more direct forms of sensation, such as the tactile, lay anteriorly, and the sense of position probably lay behind this; the more complicated qualities, such as recognition of form, were more posterior, towards the apex of the hemisphere.

Dr. KINNIER WILSON contributed a paper entitled

Certain Dysæsthesiæ and their Neural Correlates.

Complaints of tingling, numbness, and pins-and-needles were, he said, met with daily by every practising neurologist, but it was seldom asked what was the basis for these sensations. They were called "subjective," but this was a bad term, seeing that all sensations were subjective. People described as subjective sensations in which, objectively, they failed to find any particular change in sensibility. One could not know what were the sensations of a patient with a thalamic lesion unless he described them; and if he could do so the way must be open between the thalamus and the speech mechanism. He spoke of the condition present in elderly women who had had a hard-working life and who held their hands in a slightly flexed position and complained of dysæsthesia, mostly at night. He attributed these symptoms to a relative ischæmia. Another group was that of acro-asphyxia and acrodynia. There was a variety in which unbearable pain in the hands was experienced, associated with other phenomena of vascular character. In thalamic cases dysæsthesia was very common. He had never seen dysæsthesia of pain in a cortical case, but he had seen one of the pins-and-needles variety, certainly of cortical origin, and one of thermal dysæsthesia as an aura to a Jacksonian fit. He thought the question of the relation of the vascular and sensitive systems should be approached again. For instance, there were cases of venous neuralgia, which only Edinger, he believed, had referred to. He concluded by raising the question of the value of periarterial sympathectomy, and quoted a case in which unbearable pains in the limbs, unaffected by other treatments, including injection of alcohol, were cured by sympathectomy.

Dr. POLLOCK discussed the influence of overlapping function from adjacent nerves in the return of tactile sense after nerve severance.

Dr. SIDNEY SCHWAB (St. Louis) said that any logical attempt to study pain must be concerned with the person who was subjected to that sensation. The problem of sensation must always be associated with that of the awareness of the individual. States described by patients were so described according to their ability to give a description. Often dysæsthesiæ were related to somatic delusions, and he recommended a study, from this standpoint, of hypochondriasis.

Dr. CASA MAJOR said that the sensory examination of a patient must be, in part, subjective, for the doctor's knowledge must depend on the information which had sifted through the consciousness of the patient. He discussed the question of the point at which differentiation of types took place.

Dr. WEISENBURG pleaded for an uniform method of examining patients and recording the results, as well as a better systematised terminology. The discussion was continued by Dr. K. A. PETRÉN (Lund) and Dr. B. BROUWER (Amsterdam).

On Thursday afternoon the following papers were read and discussed:—Dr. ADOLF MEYER (for the late Dr. C. B. Dunlop, New York): Pathological Changes in Huntingdon's Chorea. Dr. S. KINNIER WILSON: A Case of Senile Chorea. Dr. PURDON MARTIN: A Case of Hemichorea resulting from a Small Cerebral Hæmorrhage. Dr. J. G. GREENFIELD and Dr. RUBY STERN: On the Anatomical Identity of the Werdnig Hoffman and Oppenheim Forms of Infantile Muscular Atrophy. Dr. GILBERT BECK and Dr. J. G. GREENFIELD: Diffuse Myelitis with Optic Atrophy. Dr. C. WORSTER-DROUGHT and Dr. CARNEGIE DICKSON: A Case of Hypopituitarism (Lorain type).

HUGHLINGS JACKSON LECTURE.

Dr. CHARLES L. DANA (President of the American Neurological Association) concluded the proceedings by delivering the Hughlings Jackson lecture. To his great regret, he said, he had never personally known Dr. Hughlings Jackson, but the whole profession was aware of his great intellectual endowments, his great contributions to neurology, and his charming character. Science in many instances had advanced by learning what had been done in the past; a further view ahead was obtained by standing on the shoulders of those who did epoch-making work.

Speaking of the early days of neurology in the United States, he said that in those days it was often thought that the special function of neurology was to make people think they were safe; it was felt that if anyone was nervous it was due to his own fault of continual introspection—a view which had not entirely disappeared even to-day. American neurology, in its virile state, could be said to have been the fruit of the Civil War, to which Weir Mitchell, Hammond, and W. Keen owed much of the wealth of material on which their enlightened practice and their writings were based. Many believed that war was the foster-mother of medicine, and certainly the recent world war seemed to have given a tremendous impetus to neurology, and in America had added greatly to the number of men taking it up as a specialty. In future their work would most usefully lie along the course of prevention, a subject which had been too much neglected. For many nervous diseases there was no cure, rightly so called; hence the high importance of establishing on a large scale methods of prevention. Dr. Dana concluded his lecture by speaking of what was popularly termed the nervous constitution. What was meant by nervousness? To the lay mind it meant an exaggerated mental and physical activity; the patient said he could not sit still, could not prevent himself or herself thinking all the time. There might be present also discomfort and much futile effort. He considered, however, that the nervous temperament was the highest form of constitutional make-up; it was well to have some degree of nervousness in a community. He preferred it to the lymphatic or melancholic constitution. Out of this nervousness might be developed a mechanism by which life extended its capacity and enlarged its vision, and he thought that efforts should not be made to prevent neuroses by developing a lymphatic, slow temperament. He believed in the functional activity of the master-tissue of the body.

Sir CHARLES SHERRINGTON, in proposing a cordial vote of thanks to Dr. Dana, spoke appreciatively of the experimental neurology done in America. Dr. Dana's name, he said, was intimately associated with this advance in his own country, as well as with a charming hospitality which had always been extended to those who crossed the Atlantic from England.

Correspondence.

"Audi alteram partem."

FOOD FACTORS IN RELATION TO PREVENTION OF DISEASES OF THE TEETH.

To the Editor of THE LANCET.

SIR,—May I be permitted to emphasise the importance of the paper on this subject by Dr. J. Sim Wallace published in your last issue? Therein he conveys a lesson of supreme importance to our profession, one which, if duly heeded, will prevent an immense amount of disease and suffering.

His message is just this: That caries is initiated by the corroding action on the teeth of acid generated by the fermentation of saccharide food, that the stoutest tooth is no more capable of resisting this corroding action than the feeblest, that every tooth perforce decays at those parts of it where saccharide food remains in prolonged contact, and that no tooth decays if kept clean. In short, *dental decay is wholly preventable by dental cleanliness.* It is for us to see that this pregnant truth is brought home to the community.

No one who has studied Dr. Wallace's paper with an open mind can well fail to be convinced by his arguments. Unfortunately there are still some who incline to the older view—that dental decay is largely due to inherent lack of resistance on the part of the teeth, and that its disastrous prevalence in this country is due to such inherent weakness, the result of a deficiency of vitamins, or what not, in the national diet. In view of the evidence brought forward by Dr. Wallace I cannot but think that those who maintain and propagate this view incur a grave responsibility by encouraging the popular belief that teeth decay of themselves, as it were, no matter what precautions are taken, whereas it can be stated with mathematical certainty that teeth, if properly cleansed, do not decay.

I am, Sir, yours faithfully,

Harley-street, W., August 1st. HARRY CAMPBELL.

DIET AND DIETISTS.

To the Editor of THE LANCET.

SIR,—The controversy that is taking place in your columns is certainly confusing to the members of our profession and more so to the general public. Certain statements are made by the advocates of white bread which do not coincide with experimental findings.

Within the last few years I have carried out at least 400 feeding experiments myself, and I have been allowed by Prof. Drummond and Prof. Plimmer to see the results of their feeding experiments, and for the life of me I cannot understand why there should be any doubt whatsoever as regards the value of vitamin B in nutrition. The tests are very simple. They have been carried out by many experimentalists; they have been published over and over; yet there comes on the scene in the form of a manifesto that our diet, using white bread, is perfectly safe. Why does not a committee choose either Prof. Drummond or Prof. Plimmer to carry out under the observance of three well-known physicians a test with feeding on white bread and feeding on wholemeal bread? I, personally, am unable to keep my rats alive longer than five weeks on a B-deficiency diet. If I add 2 per cent. of wheat germ to their diet my animals live almost indefinitely. This surely is ample proof that white bread is deficient in its vitamin content.

Dr. Hallilay's results, which he gives in your last issue, of the effects of wholemeal on the population of the Punjab should also be convincing, and I quite understand the absence of appendicitis, or at least the smaller percentage of appendicitis, amongst the inhabitants of the Punjab than amongst the white population of India, as anyone who has the least knowledge of deficiency diseases must have noticed the atrophy of both the longitudinal and circular muscles of the intestine and the marked atrophy of the mucous membrane that must lead to stasis with the resulting infection of the appendix.

I am, Sir, yours faithfully,

M. J. ROWLANDS.

The Knightsbridge Laboratories, Sloane-street, S.W., July 29th, 1927.

COLOUR TESTS FOR VITAMIN A.

To the Editor of THE LANCET.

SIR,—Dr. Peacock has raised several points of importance on which we should like to comment.

First, in regard to the data employed to express the dosage of ultra-violet rays. The time (duration) of exposure and the distance of the irradiated material from the lamp supplying the rays are the data commonly used (e.g., in light clinics) throughout the country to measure amounts of irradiation. These data were therefore included in our brief account of the destruction of vitamin A in cod-liver oil by direct irradiation, which was described in greater detail in a paper published recently in the *Biochemical Journal* (1926, xx., 1292). We had, however, appreciated the fact mentioned by Dr. Peacock, that the amount of irradiation is also affected both by the type of lamp employed and by fluctuations in its efficiency. We were much interested in his further data regarding his own experiments, and particularly in his method of registering the output of the lamp by means of an ammeter and voltmeter. It would be valuable to hear the experience of other investigators who have used power consumption to measure the amount of irradiation. In our own case, by courtesy of Dr. R. A. Morton, this measurement of the output of ultra-violet rays has been made by the use of actinometers of various types, in which the rays produce specific chemical changes, such as the conversion of potassium nitrate into potassium nitrite, or the decomposition of oxalic acid, whose reaction products can be estimated chemically. An advantage of these actinometers would seem to be that, since the different chemical reactions are activated by rays of different wave-lengths, it is possible, by using different reactions, to measure the output of energy in different parts of the ultra-violet spectrum, a result which could not be obtained by the use of power consumption as a criterion.

At the time of writing the above-mentioned paper on colour tests, the technique of using these actinometers had not advanced sufficiently to justify their mention. We could thus only state the type of lamp used and the fact that its output of ultra-violet rays had been shown by control experiments to be reasonably constant. Later results with actinometers, however, have shown that in the case of certain lamps there may be a loss of more than half the efficiency within a few weeks of putting them into use, and we would strongly endorse Dr. Peacock's suggestion for the establishment of international units for measuring the efficiency of all lamps employed as sources of ultra-violet rays.

A second point to which we would draw attention, and on which Dr. Peacock has obtained results supporting our own investigations, is the effect of irradiation in rendering vitamin A unstable. In your leading article of July 2nd it was pointed out that in irradiating milk to produce vitamin D there is danger that this may simultaneously cause the destruction of vitamin A, as was first shown to occur in butter by Zilva in 1919. At the outset of our investigations we hoped to overcome this difficulty by cutting down the period of irradiation to a point at which a valuable amount of vitamin D would be produced but no significant amount of vitamin A destroyed. Unfortunately, this hope had to be abandoned when we discovered that after a vitamin A-containing substance such as cod-liver oil had been

exposed to ultra-violet light even for a few minutes only, there was produced in the oil some substance, possibly of the nature of an organic peroxide, which continued to cause the destruction of vitamin A. An initial loss of about 3 per cent. of the vitamin had increased in three months' time to about 25 per cent., and after six months there was very little of the vitamin left. This observation raises serious difficulties in the commercial application of irradiation methods to foodstuffs on a large scale.

A consideration of various experimental results has led us to take great interest in the close connexion between vitamins A and D, especially in regard to the action of light under different conditions. In the case of spinach, which has long been known as a potent vegetable source of vitamin A, it has been demonstrated that the original low content of vitamin D can be markedly increased by exposure of the leaves to the action of ultra-violet rays, either those present in sunlight or artificially produced. On the other hand, the ultra-violet rays, either in sunlight or artificially produced, have been found by Dr. Peacock and ourselves to destroy vitamin A in cod-liver oil. From the recent work of Dr. Coward, however, it would appear that ultra-violet light can accelerate the formation of vitamin A in living plant tissues. From this it would also appear that the action of sunlight on vitamin A is probably different in living and in dead tissues. Many interesting and important questions arise from these observations, if they are confirmed. Is the wave-length of the rays which destroy vitamin A the same as that of the rays which produce vitamin D? Are vitamins A and D derived from the same parent substance? Do the pigments in the living plant play a part in selecting the particular rays which produce vitamin D? These and other questions suggest themselves at once for consideration in future applications of ultra-violet light both to food materials and in actinotherapy.

We are, Sir, yours faithfully,

STANLEY G. WILLIMOTT.
Cambridge, July 22nd. FRANK WOKES.

TETANUS FOLLOWING INTRAMUSCULAR INJECTION OF QUININE.

To the Editor of THE LANCET.

SIR,—It always seems to me that the cause of tetanus after intramuscular injection of quinine is a rusty hypodermic needle. On the west coast of Africa where tetanus spores are common I have made many injections of quinine without mishap. I have used a platinum needle and have refused steel needles, because when once damp they always go rusty inside even if kept bright on the outside.

There is another point. Intramuscular injection of a dense solution of quinine causes a necrotic nodule in goats and I have no doubt the same is produced in human beings. I therefore use bihydrochloride of quinine, one part dissolved in eight or ten of water. There is no need for prolonged boiling. Ten grains of the quinine salt in 80 drops of water and brought once to the boil is sufficient. Similarly a teaspoon and a hypodermic syringe and platinum needle brought once to the boil suffice for the apparatus. The test-tube containing the quinine solution should be stopped with flamed wool while it cools. The teaspoon is to pour the solution into so as to get it into the syringe. I rub over the puncture made by the needle with tinct. benzoin. co. or collodium, as what between the sweating of the patient and an occasional drop of blood which comes on withdrawing the needle it has seemed to me that infection by the puncture is possible.

I am not here considering the intracellular solidifying injections of quinine which I recommended many years ago [1] for the purpose of securing a few months' immunity from malaria in negro children.

I am, Sir, yours faithfully,

Linden-gardens, W., August 1st. G. F. DARKER.

[1] Brit. Med. Jour., 1906, ii., 1577.

MEDICAL PRACTICE IN COLOMBIA.

To the Editor of THE LANCET.

SIR,—In your issue of June 18th, under the heading Practice Abroad, it is stated that "In Colombia an unqualified person can in certain circumstances obtain permission to practise medicine but not surgery." May I state that in accordance with recent legislation nobody can under any circumstances get permission to practise medicine without being qualified.

Article 3 of Law 85 of 1922, which deals exclusively with the medical profession, reads as follows:—

"Foreign doctors in possession of diplomas granted abroad are allowed to practise medicine in Colombia provided that they can show their academic title legalised by a diplomatic or consular agent for the Republic in the country of the origin of the said title and provided that they can be personally identified and pass a theoretical and practical examination directed by the examining board created by this Law in accordance with the following conditions:" (Here the conditions are mentioned in detail.)

The above Law is published in pages 267, 268, and 269 of the Official Book issued by the Congress in 1923.

The provision mentioned in your article refers to very special cases and is only applicable to Colombians. These cases are defined in Article 11 of the said Law which stipulates that in a village where there is no certified doctor permission can be given to a practitioner to perform the duties of a doctor.

I am, Sir, yours faithfully,

J. MEDINA,
Director, Colombian Government Bureau of Information and Trade Development.
7, Sicilian-avenue, Southampton-row, London W.C., July 19th, 1927.

PATHOLOGICAL LABORATORIES AND THE B.M.A.

To the Editor of THE LANCET.

SIR,—At the annual representative meeting of the British Medical Association, held on July 16th last, the following resolution is reported to have been passed unanimously:—

"That the Representative Body disapproves of the establishment by trading firms of laboratories as subsidiary enterprises for the purpose of offering pathological examinations and reports on individual cases, and advises members of the Association to avoid any association with such enterprises."

Inasmuch as this might be taken to apply to any pathological laboratory established by a commercial firm, the Virol Pathological Research Laboratories wish to place before you the following statement in reply.

These Laboratories were established by Virol Ltd. 14 years ago in order to provide for registered medical practitioners—to whom the services of the Laboratories are confined—pathological tests at a scale of fees which should be within the reach of patients of limited income, and for research in clinical pathology. During this period over 2000 medical practitioners and 400 public health authorities have availed themselves of the services of the Laboratories.

The Laboratories are under medical control and have no connexion with the commercial side of Virol Ltd. The fees accruing from pathological tests have been devoted, after payment of establishment charges and salaries, to research in clinical pathology. No proportion of the profits has been received by Virol Ltd. As regards research, numerous investigations have been conducted by the staff, the records of which have been published in the medical press of this and other countries. All reports are and always have been signed by one or more qualified medical men, thus fixing responsibility for the opinions expressed therein. They are issued only to registered medical practitioners and never to patients direct.

On the question of competition with private pathologists, which was raised at the meeting of the Association, it may be observed that this, so far as it occurs, is inherent in the difference between a large laboratory and a single worker. In the case

of the former, the staff consists of investigators who have specialised in different branches of pathology, so that any given specimen can be examined from the bacteriological, serological, biochemical, hæmatological, and histological points of view. In other words, the opinion given is that of a "team" and not of one man only, who is seldom himself expert in all branches of pathology. Furthermore, the provision of laboratory facilities for patients of limited means is rendered possible only by the receipt of a large number of specimens—many more, in fact, than a single pathologist could examine. It follows that the private pathologist receives from his patients higher fees for the tests he performs. With this branch of practice the Virol Pathological Research Laboratories do not compete.

It is regrettable that this wholesale condemnation of "commercial" laboratories should have been made without any discrimination in regard to the nature and quality of the work performed, and entirely ignoring the important point as to whether the services of any given laboratory have been found of value to medical practitioners in the diagnosis and treatment of disease, at fees which their patients can afford to pay.

I am, Sir, yours faithfully,

A. KNYVETT GORDON, M.B.,
Medical Superintendent, Virol Pathological Research Laboratories.

July 30th, 1927.

MEDICAL SCIENCE IN THE CITY OF YORK.

To the Editor of THE LANCET.

SIR,—"The long and intimate connexion of the city of York with medicine and surgery," to which reference was made in the issue of THE LANCET of July 9th (page 78), is a subject the study of which would well repay the medical historian. Few cities have an equal record of illustrious physicians and surgeons who have earned fame in their day and generation. The Gild of Barber-Surgeons of the City of York existed from the twelfth century, and the entries in the roll of freemen contain seven names of barber-surgeons from the year 1299. That they attained eminence in their profession is proved by an entry in the exchequer accounts of John Wodehouse, under date 1346: "Payments to Master William de Bolton (freedom 1318) and Hugh Kelvington (freedom 1348), barber surgeons, going from York to the Castle of Bamburgh to heal the said David de Bres, who lay there, having been wounded with an arrow in the said battle [Neville's Cross] and to extract the arrow and heal him with dispatch, £6." William de Bolton was a munificent donor to the building of the nave of York Minster, and his arms are displayed above one of the arches therein. An Ordinance of 1614 has reference to the yearly appointment of a master in anatomy who twice during his year of office was bound, under pain of a fine of 10s., to lecture upon some surgical or anatomical subject, accompanied by a practical demonstration upon the cadaver. For this purpose the body of an executed prisoner was delivered at every assize. The master of anatomy and one of the "searchers" once in six weeks coached the apprentices "of all such as practise chirurgerie." Occasionally a candidate was failed: "Francis Brigham, Mr., but insufficiente for surgerie, and also againe the xxtie of Aprill, 1615, he is found insufficiente with full personal consente of the whole Companye."

The ordinances of the Gild are now in the British Museum (Egerton MSS. 2572), but the earliest are those in Register A/Y, folio 72, preserved in the archives of the city. In the Minster library is a bound volume of medical MSS. on vellum in different handwritings, one of which bears the date 1432. Of notable York medical practitioners a few may be mentioned—e.g., Martin Lister, F.R.S., physician to Queen Anne; Theophilus Garencieres; Robert Wittie, F.R.C.P. (1632–81); John Gowland, apothecary to George I.; Sir Clinton Wintringham, physician-general to King George II. at the battle of Dettingen, and his father of the same name, who built the house in Lendal, with the head of Æsculapius over the doorway, now used as the "Judge's lodgings"; John Burton, author of "Monasticon Eboracense" and the prototype of Sterne's "Dr. Slop" in "Tristram Shandy"; Francis Drake (1696–1771), author of "Eboracum"; Thomas Fowler, the originator of "Fowler's solution"; John Thurnam, author of "Crania Britannica"; and James Atkinson, surgeon to the Duke of York, whose "Medical Bibliography" the late Sir William Osler described as "one of the most delightful books ever written by a medical man." These are but a few of those who have shed lustre on the medical profession and on the city which harboured them. *Quasi cursores vitai lampada tradunt.*

It may be mentioned that the York Medical Society is one of the oldest existing medical societies in the provinces.—I am, Sir, yours faithfully,

Birmingham, July 16th, 1927. GEORGE A. AUDEN.

POOR-LAW HOSPITALS.

To the Editor of THE LANCET.

SIR,—Mr. Hamilton Bailey's attack upon the Poor-law medical officer in your issue of July 30th would appear to demand some reply from that "degraded" section of the profession. What precisely is meant by "professional degradation" is not entirely clear. Possibly it bears some relationship to that sense of professional humiliation which undoubtedly results not from "being associated with Poor-law" but from the necessity of devoting much time to the attempt to alleviate the dying miseries of surgical failures from the voluntary hospitals.

We are, Sir, yours faithfully,

CHARLES W. BROOK,
FREDK. W. COLLINGWOOD,
RICHARD G. ORAM,
J. L. WOODHOUSE.

Southwark Hospital, July 30th, 1927.

THE LABELLING OF EGGS.

To the Editor of THE LANCET.

SIR,—I was interested in Dr. G. Clark Trotter's letter on this subject in THE LANCET of July 16th, and I thoroughly agree with his remarks. As a general practitioner who is constantly prescribing "new laid" eggs for my patients, I have at times been dissatisfied with them, and knowing the tricks of the trade, as mentioned by Dr. Clark Trotter, in some of my serious cases I have supplied them with eggs from my own fowls. I consider that it is a very serious matter for the public to be deceived as they are; they should know what they are buying. A "new laid" egg should not be more than three or four days old, and very few imported eggs can claim to be this. I would suggest that the safest way for the public would be to have each egg stamped with the name of the country from which it came. I hope that not only medical officers of health but also general practitioners will take up this matter.

I am, Sir, yours faithfully,

A. G. EVERARD, M.R.C.S., L.R.C.P.

Clapham-road, S.W., July 18th, 1927.

To the Editor of THE LANCET.

SIR,—Your readers will, I am sure, be pleased that the misleading labelling of eggs is being ventilated in your columns. The housewife has indeed a difficult task, perhaps one might say almost an impossible one, to make certain that she obtains home produce. From the correspondence, as well as what has appeared in the public press, it is evident that the purchaser is quite commonly misled, and that imported eggs are sold to the farmer for mixing purposes so that the vendor of "home farm" eggs may be deceived. A good case seems to have been made out for marking the imported egg.

I am, Sir, yours faithfully,

E. FAIRFIELD THOMAS, M.D.

Oakley-street, S.W., July 26th, 1927.

CONTRACEPTIVE DRUGS.

To the Editor of THE LANCET.

SIR,—Allusion has recently been made in your columns to the possible effects of a drug such as chinosol on the female genital passages. It has always seemed to me that enough attention has not been given to another possibility in connexion with the use of this and similar drugs. It is common knowledge that their use has not always the desired effect, and the spermatozoon may break through the antiseptic "barrage." Should this occur, it is not unreasonable to suppose that, in a proportion of cases, the germ-cell, while it survives, has nevertheless been damaged. A drug which can kill may in a non-lethal concentration cause injury. A damaged spermatozoon may still be capable of fertilising an ovum, and it would seem almost certain that such a partly poisoned male element must seriously affect the development of the embryo. May it not be that here is to be found the explanation of some of the cases of congenital mental and physical defect? Mental defect, amounting often to imbecility, is found, to a greater extent than I think is realised, among the offspring of the well-to-do, and it is often impossible to ascribe the disaster to hereditary factors; the parents may indeed be above the normal in intelligence. Careful inquiry into the sexual habits might throw more light on the problem of causation in these cases than the tracing of a family history through several generations. There is already some evidence on the experimental side of the effects of damaging fertilised ova in their early stages of development, and it might be worth while to endeavour to observe the action of contraceptive drugs (in spite of the obvious difficulties) in the case of rapidly breeding mammals.

I am, Sir, yours faithfully,

CHAS. E. THORNTON, M.B., B.S.

Rodenhurst-road, S.W., July 26th, 1927.

THE CERTIFICATION OF LUNACY.

To the Editor of THE LANCET.

SIR,—It has already been stated in your columns but deserves iteration that there has never yet been a clear decision by the House of Lords on the question whether the mere grant of a certificate should render a doctor liable to an action for damages. It is not the certificate but the magistrate's order made consequent upon the certificate that sends a patient to the asylum. The magistrate who makes the order is protected *virtute officii* from any form of action; yet his is the hand who signs the warrant. He is not bound to sign it. He may ignore the certificate if he is not satisfied. Why should the doctor who is in reality only a witness upon whose testimony the justice makes an order be exposed, unlike any other witness in any other court, to the risk of an action for damages? As well might the mere witness at the Old Bailey who swears that he saw the prisoner breaking and entering the house of the prosecutor be cast in damages at the suit of the thief.

It is recorded that an old judge who was compelled to decide a case in accordance with principles which he did not approve, ended his judgment with these words: "Had we, the judges, been makers of the law this question had not been. But we are not here to make law but to administer it, and this I say to silence those who would protest against us." In the course of his judgment Mr. Justice McCardie clearly intimated his dissatisfaction with the present state of things when he said: "It may well be that as the result of past litigation many doctors have refused, and would refuse to take any part whatever in the work of certification because of the perils and anxieties of litigation which may occur." Many of those now practising at the Bar would agree with him that some further protective legislation is needed.

I am, Sir, yours faithfully,

July 29th, 1927. LEX.

THE MEDICAL DIRECTORY.

To the Editor of THE LANCET.

SIR,—The annual circular has been posted to each member of the medical profession. If the form has not been received, a duplicate will be sent on request. We shall be grateful for the return of the forms by an early post.

We are, Sir, yours faithfully,

J. AND A. CHURCHILL.

7, Great Marlborough-street, W., July 29th, 1927.

Medical News.

ROYAL COLLEGES OF PHYSICIANS OF LONDON AND SURGEONS OF ENGLAND.—At a meeting of the Comitia of the Royal College of Physicians and of the Council of the Royal College of Surgeons on July 28th, diplomas of L.R.C.P. and M.R.C.S. were respectively conferred upon 179 candidates (146 men and 33 women), who have passed the Final Examination in Medicine, Surgery, and Midwifery of the Conjoint Board and have complied with the by-laws of the Colleges. The following are the names and medical schools of the successful candidates:—

S. I. Abrahams, Guy's; Florence A. Adam, Royal Free; Florence M. Allen, King's Coll.; N. H. C. Allen, Guy's; * V. F. Anderson, Westminster; J. H. Attwood, St. Bart.'s; Grace L. Austin, Univ. Coll.; I. Bakhsh, Guy's; D. S. M. Barlow, Univ. Coll.; W. V. Beach, Guy's; A. C. H. Bell, St. Bart.'s; J. F. Bell, Liverpool; Constance M. H. Bishop, Charing Cross; W. Blayney, St. Thomas's; O. Bode, Berlin and London; * J. A. F. Bouloux and J. L. Boyd, Univ. Coll.; A. H. Brockbank, Guy's; W. G. Brookes, Liverpool; W. H. Brown, St. Mary's; S. G. Budd, Cardiff; D. R. W. Burbury, London; J. K. Cameron, Liverpool; D. C. Carroll, Cambridge and London; Margaret B. Carter, St. Mary's; J. T. Chesterman, Bristol; F. H. Chick, Birmingham; M. Cohen, Middlesex; C. R. Cooke-Taylor, Edinburgh and Univ. Coll.; S. Craddock, St. Mary's; L. J. Crosskey, Birmingham; J. N. Cumings, King's Coll.; Constance M. Cusden, Charing Cross; Alva A. Daniell, Punjab and Royal Free; T. S. Daniels, Cape and Guy's; E. L. Davies, Univ. Coll.; W. A. Davies, Liverpool; P. M. Davidson, London; S. Deaner, St. Mary's; H. G. de Silva, Ceylon and Middlesex; C. I. D'Netto, Calcutta and London; C. W. L. Dodd and G. C. Dorling, London; Doris V. Douglas-Norman, King's Coll.; P. J. Dowling, Middlesex; Helen L. Dunn, Charing Cross; D. E. Dunnill, Guy's; Evelyn Durrance, Royal Free; G. A. Eason, Cambridge and St. Bart.'s; T. Edmunds, Cardiff and St. Thomas's; Jessie Edwards, Charing Cross; J. A. Edwards, Cardiff and St. Bart.'s; R. W. Eldridge, Liverpool; A. Erian, Cairo and St. Bart.'s; M. R. Ernst, St. Bart.'s; Muriel F. M. Evans, Charing Cross; Margaret C. Falconar, Royal Free; H. W. Fell, Liverpool; G. S. Ferraby, King's Coll.; J. Fitzsimons, Otago and Middlesex; F. Forty, Univ. Coll.; H. L. Fuller, Bristol; C. E. Gallagher, Guy's; J. C. Gent, Bristol and St. Mary's; R. C. D'A. Gifford, Birmingham; F. H. Gillett, Cambridge and St. Thomas's; R. V. Goodliffe, St. Bart.'s; L. C. Griffin, St. Thomas's; C. D. Gun-Munro, King's Coll.; P. E. T. Hancock, Cambridge and St. Bart.'s; H. Hannessen, Manitoba and London; Alma B. Hardy, Madras and Royal Free; L. I. Hardy, Leeds; Eunice M. Hatch, Royal Free and St. Mary's; J. E. Heggart, Middlesex; G. B. M. Heggs, St. Mary's; C. Hill, Cambridge and London; H. Hillaby, St. Bart.'s; Phyllis N. Hooper, Cardiff; M. K. Hussein, Cairo and St. Bart.'s; P. Inwald, Middlesex; A. Ismail, Cairo and St. Thomas's; P. B. Jackson, Middlesex; H. E. James, Univ. Coll.; H. M. Jaques, Middlesex; J. L. G. Jenkins, Cardiff and St. Bart.'s; A. M. Jones, Cardiff; D. N. R. Jones, Cambridge and St. Mary's; Lily A. Jörgensen, Melbourne and Royal Free; P. Kaplin, St. Mary's; E. R. Keeble, Cambridge and London; Caroline M. Kingsmill, St. Mary's; A. König, Berlin and Middlesex; O. L. Lander, Cambridge and London; D. A. Langhorne, St. Bart.'s; G. Lee, St. Thomas's; J. A. Lee, Durham; F. G. Leslie, Cambridge and London; C. A. Levy, St. Thomas's; Olive H. E. Lister, Oxford and King's Coll.; F. Lomas, Liverpool; M. S. Mahmood, Punjab and Middlesex; R. Maneschewitz, Cape and Guy's; Muriel M. Manley, Royal Free and St. Mary's; E. W. Martindell, Univ. Coll.; T. E. Matthews, Cambridge and St. Mary's; K. S. May, King's Coll.; M. Y. May, Madras and Royal Free; F. J. Mayne, Guy's; L. P. McBrien, St. Thomas's; R. A. McCance, Cambridge and King's Coll.; J. McHugh, Liverpool; T. W. Morgan, Cardiff and St. Thomas's; V. V. Morgan and E. G. Muir, Middlesex; J. B. Murray, Cambridge and St. George's; *Ethel E. M. Ogilvie, Royal Free; R. Oliver, Univ. Coll.; R. O'Meara, Birmingham; A. B. Pain, Leeds; W. Panes, Cardiff; * Dulcie J. Peake, Royal Free; T. Pearse, Liverpool; M. V. P. Peiris, Ceylon and St. Thomas's; E. U. H. Pentreath, St. Bart.'s; Mary E. Percy, Birmingham; R. F. Phillips, St. Bart.'s; J. R. Pierre, Univ. Coll.; M. W. Platel, Madras and St. Bart.'s; O. Plowright, Guy's, A. D. Polonsky, Cape and Liverpool; W. H. D. Priest, King's Coll.; G. W. Rake, Guy's; W. Ralston, London, H. L. Rees, King's Coll.; J. R. Rickett, Guy's;

L. T. Ride, Melbourne and Guy's; Muriel Rippin, Univ. Coll.; Margaret A. Ritchie, Charing Cross; E. H. Roberts, St. Bart.'s; *Phyllis M. Robottom, Westminster; E. ap I. Rosser, Cardiff and St. Bart.'s; M. Rothkopf, Middlesex; H. Royle, St. Bart.'s; J. E. Saville, St. Thomas's; D. P. H. Schafer and N. T. H. Schafer, Adelaide and London; H. Schneidin, Middlesex; R. H. Scott, St. Mary's; G. S. Seed, Leeds; C. W. Shaw, Cambridge and St. George's; N. L. Shepperd, King's Coll.; F. C. Simpson, Manchester; B. D. Sindhwani, Bombay and Durham; Hilda W. Slack, Royal Free; Eileen R. B. Snow, Royal Free and St. Mary's; P. A. M. Soutter, Westminster; Dorothy Taylor, Cambridge and St. Mary's; V. J. M. Taylor, Liverpool; R. G. Thomas, St. Thomas's; E. C. Till, Guy's; R. H. Tootill, Manchester; H. A. Tracey, Oxford and St. Bart.'s; *Winifred M. Turner, Royal Free; S. Tyagaraja, Cambridge and St. Thomas's; K. S. A. Venkatachala Ayyar, Madras and Guy's; A. D. Versteegh, Harvard and St. Thomas's; F. L. H. Voller, St. Thomas's; *Joan B. Walker, Royal Free; E. Ward, Manchester; E. N. Wardle, Liverpool; A. G. Watkins, Cardiff and Univ. Coll.; P. H. Whitaker, Liverpool; Margaret A. Willcox, Cambridge and King's Coll.; F. C. Wilson, King's Coll.; W. M. Wilson, St. Bart.'s; J. Wooliff, Cape and St. Thomas's; R. L. Wynne, Liverpool; and H. Yousri, Birmingham.

* Diploma of M.R.C.S. was conferred previously.

The undermentioned diplomas were jointly conferred upon the following candidates:—

DIPLOMA IN PUBLIC HEALTH.

B. F. Beatson, Elizabeth Bird, Marion Bow, C. E. W. Bower, C. H. Budge, S. C. Chopra, N. P. Dalal, C. J. Donelan, Doris L. Durie, W. C. Harvey, N. M. Hodivala, A. Y. Ibrahim, J. S. Kapadia, Dorothy F. McIntosh, M. S. Mahmood, J. P. Marsden, Doris I. Mart, J. N. Mehra, T. C. St. C. Morton, S. G. Nashikkar, Margaret M. Nolan, Esther Novinsky, R. S. Ralph, H. Ratnarajah, J. L. Stuart, E. V. Suckling, and Elsie Thomson.

DIPLOMA IN OPHTHALMIC MEDICINE AND SURGERY.

A. S. Anderson, M. A. H. Atiya, J. Biggam, Catherine McL. Buchanan, W. B. Clipsham, A. G. Curzon-Miller, Edith Hatherley, E. F. King, V. M. Metivier, F. J. B. Miller, J. H. Moorhouse, W. M. Muirhead, W. D. O'Donoghue, W. J. Robertson, G. Singh, R. G. Stott, S. E. Ward, J. R. Wheeler, and M. Yuille.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.—An ordinary Comitia of the College was held on July 28th, Sir John Rose Bradford, the President, being in the chair. The following candidates having satisfied the Censors' Board were admitted as Members:—

Murray McC. Baird, Henry T. Barron, Charles P. Blacker, Vernon H. Brink, Eric B. Brooke, Hugh P. Dawson, Robert van Buren Emmons, Ernest T. D. Fletcher, Alexander W. Gill, Katharine A. C. Gillie, James A. Glover, John G. J. Green, Alice E. B. Harding, George A. Hardwicke, John A James, John W. Joule, George H. K. Macalister, Douglas H. MacLeod, Greer E. Malcomson, Alexander K. Miller, Jessie L. Robb, Wilmot Samarasinghe, Ronald E. Smith, Claude A. Taylor, John H. M. Walker, Edwin C. Warner, Henry L. Wilson, John G. Wilson.

Licences to practise physic were granted to 179 candidates who had conformed to the by-laws and regulations of the College and passed the Final Examination in Medicine, Surgery, and Midwifery of the Examining Board in England.—Diplomas were granted jointly with the Royal College of Surgeons to 27 candidates in Public Health, to 12 in Psychological Medicine, to 19 in Ophthalmic Medicine and Surgery, and to 12 in Laryngology and Otology.

The following were elected officers of the College for the ensuing year:—

Censors.—Sir Edward Farquhar Buzzard, Dr. F. J. Poynton, Dr. A. P. Beddard, and Dr. J. W. Carr.
Emeritus Treasurer.—Sir Dyce Duckworth.
Treasurer.—Dr. S. P. Phillips.
Registrar.—Dr. Raymond Crawfurd.
Harveian Librarian.—Dr. Arnold Chaplin.
Assistant Registrar.—Dr. R. O. Moon.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.—At a meeting of the College held on July 27th, Dr. A. Logan Turner, the President, in the chair, the following 29 candidates, out of 55 entered, who passed the requisite examinations on April 1st, were admitted Fellows:—

Hamish M. Anderson, William A. Nasabushanam Chanmugam, John N. Chesterman, Gopinath Singh Chowdhary, William D. Cruickshank, Praphulla Chandra Datta, Thomas D. Deighton, Eric G. Dingley, Arthur H. McC. Eaton, Henry R. Haigh, Henry W. Harvey, Thomas G. I. James, Victor F. Lambert, William J. Liddle, Ralph Lodge, Herbert Lord, Peter A. McCredie, George McNeill, Wilfred Park, Arthur D. Pegg, George A. Pollock, Nanikram Chartsing Ramchandani, Ronald M. Savage, Julienne Singham, Robert I Stirling, Edward C. Tamplin, John M. R. Thomas, Margaret C. Tod, and Weldon P. T. Watts.

MEDICAL TOUR OF THE FRENCH RIVIERA.—The Medical Society of the Mediterranean Coast has arranged a tour of the French Riviera from Dec. 30th to Jan. 7th next. It will be open to all medical practitioners and their families, and further information may be had from the French National Touring Office, 56, Haymarket, London, S.W. 1.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—At an ordinary meeting of the Council held on July 28th, Sir Berkeley Moynihan, President, in the chair, Mr. Thelwall Thomas, the recently re-elected member of the Council, was introduced and took his seat in the Council. Mr. J. Lewin Payne was re-elected a member of the Board of Examiners in Dental Surgery. An offer by the Committee of Management of King's College Hospital to lend permanently to the College Lord Lister's Surgical Notes was accepted.—A letter was read from Dr. A. Primrose on behalf of the Canadian Medical Association thanking the Council for the interest they have taken in facilitating the taking of the examination of the Royal College of Surgeons by candidates from the Dominion of Canada. A letter had been sent regarding the arrangements which might be made for holding Primary Examinations for the Fellowship to the Canadian Medical Association.—The Council have accepted with much appreciation a gift of £5000 from Mr. Buckston Browne, F.R.C.S., to be invested, the interest from such investment to be expended in providing an annual dinner on the College premises for Fellows and Members of the College and such others as the President and Council may wish to invite, at least half the guests invited to be Members of the College.—A sum of £100 was voted for expenses in connexion with an investigation, to be carried out in the museum workrooms by Sir Charles Ballance, with the assistance of Mr. Burne and Mr. S. Steward, regarding the rejuvenation of nerves by the method of tissue culture.

UNIVERSITY OF CAMBRIDGE.—Mr. H. L. Wilson, of Emmanuel College, has been elected to the E. G. Fearnsides Scholarship for the encouragement of clinical research among the organic diseases of the nervous system.

MILROY LECTURES.—The Council of the Royal College of Physicians of London announces that applications for the office of Milroy Lecturer for 1929 must be addressed to the Registrar by Sept. 28th next. Particulars will be found in our advertisement columns.

UNIVERSITY OF LEEDS.—In connexion with the forthcoming meeting of the British Association at Leeds it has been decided to confer the honorary degree of Doctor of Laws upon Sir Arthur Keith, F.R.S., President of the Association (1927–28), and the degree of Doctor of Science upon Dr. John Scott Haldane, F.R.S.

METROPOLITAN ASYLUMS BOARD.—A three months' course of lectures and demonstrations on Clinical Practice and in Hospital Administration will be given at the North-Eastern Hospital, St. Ann's-road, Tottenham, N. 15, by Dr. F. H. Thomson, medical superintendent, on Mondays and Wednesdays, at 4.45 P.M., and alternate Saturdays, at 11 A.M., beginning on Monday, Oct. 3rd. Particulars are obtainable from the Clerk to the Board, Victoria Embankment, London, E.C. 4.

LANCASHIRE TUBERCULOSIS HOSPITAL.—The Lancashire County Tuberculosis Committee has decided to provide more accommodation for the treatment of cases of acute tuberculosis at the Wrightington Hall Estate, near Parbold, where there is about 160 acres of land. The Ministry of Health will recommend a grant of £180 per head towards the capital expenditure involved in the scheme to provide 226 beds on the estate.

APPOINTMENT OF WOMAN POLICE DOCTOR.—The Watch Committee of the City Council of Manchester has appointed Mrs. Nesta Helen Wells, M.B., of Chorlton-on-Medlock, as medical officer to the Manchester City Police Force. This is said to be the first appointment of its kind in the country and is the result of a decision by the City Council some months ago that the examination of women suspects or prisoners should be carried out by a woman rather than by a man.

THE LATE DR. J. S. BROOKFIELD.—Dr. John Storrs Brookfield, who died on July 19th at the age of 82, was a striking figure in the medical school of the University of Edinburgh in the late 'sixties and early 'seventies of last century. He had graduated in Arts at the University of New Brunswick in 1864, and was somewhat older than his contemporaries at Edinburgh, but he entered with enthusiasm into both intramural and extramural activities at the University. He graduated as M.B. in 1871, and became M.R.C.S. Eng. in the same year. In 1873 he proceeded to the M.D. degree. He served as medical officer of health at Penistone, Clayton West, and Huddersfield, and then settled at Kilburn, where he was physician to the Kilburn and St. John's Wood Dispensary. Afterwards he became consulting physician to the Willesden Hospital, and was appointed a justice of the peace for Middlesex. Moving to Upminster, in Essex, he was attached to institutions in the neighbourhood, but for the last few years had been living in retirement.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

THE SUMMER ADJOURNMENT.

PARLIAMENT adjourned on Friday, July 29th, for the summer recess. Both Houses will reassemble on Tuesday, November 8th. Among the measures to which the Royal Assent was given by Royal Commission were the following: The Finance Act; the Diseases of Animals Act; the Poor Law Act; the Midwives and Maternity Homes (Scotland) Act; the Trade Disputes and Trade Unions Act; the St. Mary's Hospital (Newcastle-upon-Tyne) Act; and the Workmen's Compensation (Transfer of Funds) Act. Much information of medical interest was elicited during the concluding days of the session, some of which has been unavoidably held over until our next issue.

HOUSE OF COMMONS.

WEDNESDAY, JULY 20TH.

Treatment of Mental Patients in the Sudan.

Mr. PETHICK-LAWRENCE asked the Secretary of State for Foreign Affairs what facilities existed in the Sudan for the detention and treatment of persons certified as insane; and whether it was the practice in the Sudan to detain such persons in ordinary prisons.—Mr. LOCKER-LAMPSON (Under Secretary for Foreign Affairs) replied: I understand that there are no regular lunatic asylums in the Sudan, but that as regards Europeans mild cases of insanity are dealt with in the hospitals, while violent or dangerous cases are sent to Cairo as soon as possible, being housed in such accommodation as may be available en route, and being admitted to an institution on arrival there. Cases of insanity amongst the Sudanese are always, when possible, sent to their homes, recourse being only had to hospitals, prisons, or such accommodation as is available locally in violent or dangerous cases.

Accident at Liquid Air Company's Works.

Mr. DAY asked the Home Secretary whether his attention had been drawn to an incident which happened to an oxygen receiver belonging to the Liquid Air Company at the Bolton super-heater works, Adswood, in which two men lost their lives; and whether the officers of his department were investigating this occurrence.—Captain HACKING replied: Yes, Sir. The circumstances of this accident have been carefully investigated by the Factory Department. Their report shows that it was caused by the clothing of the two unfortunate men catching fire when they were inside the receiver. There was no sign, however, of any explosion, and it has not been possible to obtain any definite evidence as to how the fire originated. Inquiry will be made into the practice in other works where similar plant is in use with a view to considering what precautions are necessary to prevent any such accident in future. This is the first case of the kind that has come to the notice of the department.

THURSDAY, JULY 21ST.

Noise of Motor Traffic.

Sir ROBERT THOMAS asked the Home Secretary whether he was aware that his warning, issued to motorists last year, that they must more effectively silence their machines, had not produced any appreciable diminution in the noisiness of a great many machines; and whether he would take further action in the matter.—Sir W. JOYNSON-HICKS replied: The hon. Member may be interested to know that in the first six months of this year there were over 5700 prosecutions in the Metropolitan Police District. In any event, the police will continue to take such steps as are possible to abate the nuisance in so far as it still exists.

Sir R. THOMAS: Is the right hon. gentleman not aware that these infernal screeching motor syrens are causing intense mental anguish to hundreds of patients in nursing homes in London, and often causes their deaths; and does he not realise that it is necessary to take drastic action?

Sir W. JOYNSON-HICKS: I do not know what more drastic action I can take than to prosecute 5700 people in six months. My definite instruction to the police is at all times to stop the noise of motor-cycles and motor-cars.

Cream and Food Preservative Regulations.

Mr. LAMB asked the Minister of Health whether it was his intention, before enforcing the Public Health (Preservatives, &c., in Food) Regulations in respect to cream, to introduce the legislation necessary to prohibit the reconstitution of cream so as to give the public the same protection as they now enjoyed in the case of milk.—Mr. CHAMBERLAIN replied: I am informed that it is not necessary to introduce legislation for this purpose, as the existing provisions of the Sale of Food and Drugs Acts would prevent the sale of reconstituted cream as cream. The Preservatives Regulations will apply to the substitute equally as to genuine cream.

The Milk and Dairies Order.

Mr. ALBERT ALEXANDER asked the Minister of Health whether his attention had been called to the fact that, as stated at a meeting of the Great Yarmouth town council, large numbers of milk retailers in the borough of Yarmouth had not yet been registered; and what steps he proposed to take to see that the Milk and Dairies Order was enforced.—Mr. CHAMBERLAIN replied: My attention had not previously been drawn to this statement, but I am communicating with the town council on the subject.

Cost of the Public Services.

Mr. BENNETT asked the Secretary to the Treasury the amount per head of the population expended in respect of each of the public services undertaken or contributed to by the State in 1913 and in 1926–27 respectively.—Mr. R. MCNEILL replied: The amounts issued from the Exchequer to meet expenditure in the years 1913–14 and 1926–27, divided by the population, taken as 45,713,000 (Great Britain and Ireland) for 1913, and 45,227,000 (Great Britain and Northern Ireland) for 1926, are as follows:—

—	Exchequer issues.		Per head of population.					
	1913–14.	1926–27.	1913–14.			1926–27.		
	£ (millions).		£	s.	d.	£	s.	d.
National Debt Services	24,500	378,584	0	10	9	8	7	5
Other Consolidated Fund Services ..	12,823	40,181	0	5	7	0	17	9
Army, including Ordnance Factories ..	28,346	43,600	0	12	5	0	19	3
Navy	48,833	57,600	1	1	4	1	5	6
Air Force	—	15,530		—		0	6	11
Civil Estimates ..	53,901	240,486	1	3	7	5	6	4
Customs and Excise and Inland Revenue	4,483	11,514	0	2	0	0	5	1
Post Office Services ..	24,607	54,900	0	10	9	1	4	3
Total	197,493	842,395	4	6	5	18	12	6

MONDAY, JULY 25TH.

Social Hygiene in Colonies.

Sir ROBERT NEWMAN asked the Secretary of State for the Colonies if he would state what steps had been taken to give effect to the recommendation of the Colonial Office Advisory Committee on Social Hygiene, in their first report issued in 1925, that the Government of the Straits Settlements should at the earliest practicable date suppress all brothels whenever their existence was discovered.—Mr. AMERY replied: I have no recent report bearing on this particular part of the Committee's recommendations, but the whole problem is receiving the constant and careful attention of the local government in the light of the Committee's report. I would remind my honourable friend that the Committee recognised that it could not fix a limit to the time which would be required for the suppression of all known brothels.

Mr. CECIL WILSON asked the Secretary of State for the Colonies whether he would consider the calling together of the Colonial Office Advisory Committee on Social Hygiene with a request that a report should be prepared and issued upon methods of dealing with prostitution in Hong-Kong, the Federated Malay States, Malta, and Cyprus.—Mr. AMERY replied: The question of the reconstitution of a committee to advise me on this subject is now under consideration, but pending a decision as to this I can give no undertaking as to whether it will be possible to deal with the problems arising in all the dependencies referred to in the question.

Civil List Pensions.

Mr. HURD asked the Prime Minister whether, in order to provide adequate State recognition of self-sacrificing and devoted services to medicine, science, philosophy, and literature, he would arrange for an increase in the Civil List pension of about £75 for a person now awarded, or supplement that sum by some other form of recognition.—Mr. CHURCHILL replied: The amount which can be distributed in any year is strictly limited by a statutory provisions of the Civil List Act. In present circumstances I cannot contemplate the introduction of legislation to revise that arrangement.

Medical Men and Privilege in the Courts.

Dr. VERNON DAVIES asked the Minister of Health if his attention had been drawn to the decision of one of His Majesty's judges at the Birmingham Assizes on July 18th, 1927, that there was no privilege for medical men to refuse information to the court obtained confidentially in the treatment of a patient suffering from a particular

complaint, in spite of definite assurances in the past by the Ministry of Health that such information would be inviolate; and, as this decision by the learned judge must exercise a deleterious effect upon the detection and treatment of this complaint by preventing sufferers seeking competent medical advice and treatment, what steps he proposed to take to implement the assurances given to such sufferers in the past that the information obtained by submitting themselves to treatment would be kept inviolate; and whether, in view of the importance of removing any obstacle to complete confidence between a patient and his medical adviser in the early stages of this disease, he would inquire into the desirability of introducing legislation to give a doctor the right, at least in the case of this disease, to refuse to give evidence about confidential information obtained from a patient.—Sir KINGSLEY WOOD replied: My right hon. friend's attention has been drawn to this case, and he proposes to give very careful consideration to the points raised by it.

Dr. DAVIES asked if the Minister of Health would bear in mind, when considering this question, that it was a matter dealing with panel patients, and that it might have very deleterious effects on the treatment of disease and lead to a feeling of insecurity both among medical men and their patients.

Sir K. WOOD replied that there were many difficult questions, to which the Minister of Health proposed to give very careful consideration.

Death-rates in West Ham.

Miss LAWRENCE asked the Minister of Health whether he would give the death-rate for 1000 living for the county borough of West Ham for the quarters ended March 30th and June 25th for the years 1926 and 1927.—Sir KINGSLEY WOOD replied: The provisional figures are as follows: For the 13 weeks ended April 3rd, 1926, and April 2nd, 1927, 12·7 and 15·3 respectively; and for the 13 weeks ended July 3rd, 1926, and July 2nd, 1927, 9·9 in each case.

TUESDAY, JULY 26TH.

Deaths in the Chinese Defence Force.

Mr. THOMAS KENNEDY asked the Secretary of State for War the number of members of the Chinese defence force that had died in China this year; the disabilities which were the cause of death; and the number of cases accepted as due to service in which the widows or other dependants had been granted pensions.—Commodore DOUGLAS KING replied: There have been 12 deaths in China among the British troops and two among the Indian troops, not forming part of the permanent establishment there. Eight of the cases were due to illness and the rest to accidents or wounds. In 11 of the 12 British cases there was no widow, and no claim has been received for dependant's pension. The twelfth case, which occurred at the end of June, is at present under consideration. I will ask my noble friend the Secretary of State for India, to ascertain whether any pension is being granted in either of the Indian cases and to communicate direct to the hon. Member the result of his inquiry.

Slum Clearances in Glasgow.

Mr. STEPHEN asked the Secretary of State for Scotland what steps had been taken by the Glasgow local authority in accordance with their statutory powers, to require the owners to make habitable the 1300 houses in the Camlachie Parliamentary division of Glasgow, which had been declared by the sanitary authority as unfit for human habitation, until new houses could be provided for the people concerned.—Mr. CHAMBERLAIN replied: The subject to which the hon. Member refers was considered by the consultative council at their meeting on July 21st. I am informed that they desire to give the matter further consideration before communicating to me their final views.

Plague Infection in the Port of London.

Mr. BENJAMIN SMITH asked the Minister of Health if he was aware that the ss. *Biela* and the ss. *Isapo*, now in the port of London with a cargo of grain, had been certified by the port sanitary authority to be suspect of containing vermin infected with bubonic plague; what steps he proposed to take to prevent the spread of infection; was he aware that three ships, the ss. *King Frederick*, the ss. *Rossetti*, and the ss. *St. Holdsworth*, now in the port, were suspect of carrying vermin infected with bubonic plague; and what steps he proposed to take to prevent steamers from entering the river or docks of the port of London without examination, and to cause them, if discovered to be infected, to be placed under quarantine, and have all necessary precautions taken to prevent the carrying of the disease into the port.—Sir KINGSLEY WOOD replied: The answer to the first part of the question is in the affirmative, and to the third part in the negative. As regards the second part, as the hon. Member is aware, the port sanitary authority are responsible for the measures taken to prevent the spread of infection, and all necessary measures appear to have been taken in the case of the two ships mentioned in the first part of the question. As regards the fourth part, I am informed that all vessels from South American ports, bound for the port of London, are boarded at Gravesend, and that vessels from these ports carrying grain are at present receiving special attention. I think the hon. Member may rest assured that the port sanitary authority will take all necessary precautions to prevent the spread of infection.

Mr. B. SMITH asked whether the risk of infection did not reside, even after fumigation, in the carcase of the rat, which was sucked up in the suckers, distributed to various parts of London and ultimately sold as bread, mostly to poor people.

Sir K. WOOD: I hope that is not the case, but I can assure the hon. Member that precautions are being taken.

Mr. GOSLING asked if the hon. Member was satisfied, apart from what the port sanitary authority informed him, that he was safeguarding the people in the congested areas in the East End from this plague being carried ashore. There would be a great danger if it got into the port, and if it did so how was he going to stop it.

Sir K. WOOD: I can quite understand the natural apprehension arising in regard to the facts of this case, but I can assure the hon. Member that every step that is possible is being promptly, and I believe efficiently, taken.

Mr. SEXTON asked whether it was possible to insist that the grain should be carefully examined before it went into the bags in order to see that no dead bodies got mixed up with it during the discharge from the ship.

Sir K. WOOD: The hon. Member can rely upon it that his suggestion will be considered. I do not think that any unnecessary apprehension need arise, because I believe that effectual steps are being taken to deal with the situation.

Mr. BENJAMIN SMITH asked the President of the Board of Trade what precautionary measures were taken to prevent foreign countries shipping cereals, to which vermin infected with disease had access, on steamers loading for this country.—Sir KINGSLEY WOOD replied: In the case of foreign countries which have ratified the International Sanitary Convention of 1912, the port sanitary authorities of plague-infected ports are required to take effectual measures to prevent rats gaining access to ships.

Medical Examinations of Prisoners.

Mr. RHYS DAVIES asked the Home Secretary whether he was aware that, in accordance with a Home Office regulation, a person who was arrested for being drunk whilst in charge of a vehicle and who demanded to be examined by his own doctor, was not allowed to be so examined in private, the police insisting upon being present; and whether he would give instructions that in such cases the examination should be private, as was the practice in an interview between an accused person and his lawyer.—Sir WILLIAM JOYNSON-HICKS replied: I am aware that the general practice is as stated in the first part of the question and I think this practice is right. I cannot see how the interests of the prisoner can be prejudiced by the presence of a police officer, who may have to give evidence in court with regard to the examination. Interviews with solicitors are obviously on quite a different footing.

Ventilation of the London Tube Railways.

Mr. GILLETT asked the Minister of Transport whether his attention had been called to the recent prolonged stoppages in the London tubes and the discomfort inflicted on the passengers by the want of sufficient air; and whether he would take steps with a view to seeing what could be done to improve the ventilation.—Colonel WILFRID ASHLEY replied: I am in communication with the London Electric Company with regard to the question of the ventilation of tube railways.

WEDNESDAY, JULY 27TH.

Fishermen and Health Insurance.

Mr. ERNEST BROWN asked the Prime Minister whether an amending Bill for health insurance was in preparation; if so, whether fishermen were to be included in it; and if it would apply to Scotland.—Mr. CHAMBERLAIN (Minister of Health) replied: As soon as the consideration of the recommendations of the recent Royal Commission on National Health Insurance has been completed, it is hoped to introduce the necessary legislation, and the question of the compulsory insurance of share fishermen both in England and Scotland, in so far as they are not already included in the scheme, would be dealt with in such legislation.

Opium Cultivation in India.

Mr. THURTLE asked the Under Secretary of State for India whether he was now in receipt of the full report of the recent conference at Simla on opium cultivation in the Indian States; whether he would inform the House of the main decisions there arrived at; and whether he would

consider the question of publishing the proceedings of the conference in the form of a White Paper, in view of the public interest in the efforts being made to reduce the world production and consumption of opium for other than purely medical purposes.—Earl WINTERTON replied: My noble friend has received a report. The conference recommended that a committee should be formed to conduct a series of local inquiries, in which the States concerned would be associated, and suggested terms of reference covering the following questions: (*a*) the agricultural and financial aspects of the subject, including the possibility of replacing poppy by other crops and the effect of such substitution upon the prosperity of the States and their subjects; (*b*) a searching inquiry into the extent to which opium is consumed, the occasions on which and the purposes for which it is consumed, the manner in which it is prepared for consumption, and its physiological effects upon the consumer (the important question to what extent opium is administered to infants was not lost sight of); (*c*) the amount of the stocks of opium existing in the States and the best means of disposing of them; smuggling and remedies therefor; and, finally, the advisability and practicability of adopting the policy suggested by the Government of India—namely, the discontinuance of cultivation in the States, the purchase of opium by the States from the Government factory at Ghazipur at cost price and a gradual enhancement of the selling price of opium in the States, so as ultimately to equalise it with that prevailing in the adjoining British districts, and thereby to remove the incentive to smuggling into British India and reduce the average rate of consumption in the States. It is not proposed to publish a White Paper on the subject, but a copy of a communiqué issued in India regarding the proceedings is being placed in the library.

Death of a Woman Weaver at Arbroath.

Mr. JOHNSTON asked the Home Secretary whether he had had his attention drawn to the death of a woman weaver in an Arbroath factory; was he aware that this woman was 62 years of age and was engaged, along with another weaver, in lifting a piece of finished cloth weighing 115 lb., that the regulations in the woollen trades forbade women lifting cloth pieces weighing over 50 lb., and that the jury at the inquiry under the Fatal Accidents Act had drawn attention to the dangers of heavy weight-lifting by women; and what steps, if any, he proposed to take.—Captain HACKING (Under Secretary for the Home Office) replied: A report on this case has been called for and when it is received the Home Secretary will go carefully into the matter and communicate the result to the hon. Member.

Lunacy Act Regulations.

Mr. GOSLING asked the Minister of Health if he was aware that the Cobb Committee recommended that Section 79 of the Lunacy Act should be posted up in the rooms where friends came to visit pauper patients; and why this had not been done, so that friends, as well as relatives, might be made aware of the rights conferred on them by the statute.—Mr. CHAMBERLAIN replied: In the opinion of the Board of Control there are serious objections to a general requirement that this section should be posted up in waiting-rooms. The revised rules of the Board of Control, dated Jan. 7th, 1925, provide that:—

"The managers of every institution for lunatics shall, on the admission of every pauper lunatic to an institution for lunatics, send a notice to all persons, whose names appear as relatives or friends of the patients on the statement of particulars accompanying a reception order, as to the times and conditions of visitation; and in such notice shall be embodied the substance of Section 79 of the Lunacy Act, 1890."

THURSDAY, JULY 28TH.

Street Accidents in London.

Mr. DAY asked the Home Secretary the number of accidents, fatal and otherwise, that had taken place in the streets of the metropolitan police district for the month of June, 1927.—Sir W. JOYNSON-HICKS replied: The number of accidents known to the police during the month of June, 1927, is as follows:—

Fatal accidents	92
Non-fatal accidents involving personal injury	4500
Accidents involving damage to property only	5699
Total number of accidents known to the police	10,291

As a result of these accidents the total number of persons killed was 92, and injured 4863.

Surgical and Medical Treatment of Prisoners.

Mr. HAYES asked the Home Secretary the number of persons who were removed from prisons to outside hospitals in order that operations might be performed during the year 1926, and the number of cases of childbirth, if any, that took place inside prisons, including Broadmoor, during the year 1926.—Sir WILLIAM JOYNSON-HICKS replied: Ninety-eight persons were removed from prison during 1926 under Section 17 (6) of the Criminal Justice Administration Act, 1914, for surgical or medical treatment which could not be given in prison. The number of cases of childbirth in prison (including two in the Aylesbury Borstal Institution) during the same year was 18. The corresponding figures for Broadmoor are none and one.

Mr. HAYES: Would an amendment of the law be necessary in order that cases of this character might be treated outside prison?

Sir W. JOYNSON-HICKS: If it were compulsory, yes, an amendment of the law would be necessary. There is always a prerogative which in certain cases is exercised, and in certain cases is not exercised.

Mr. DAY: How many of these 98 people were on parole and how many in custody during the operations?

Sir W. JOYNSON-HICKS: I cannot say without notice. There is provision under the Act for removal to hospital for the purpose of surgical or medical treatment which cannot be given in prison, and there are arrangements made for the persons concerned to go back to prison when the operation is over.

Mr. HAYES asked the Secretary of State for Scotland the number of persons who were removed from prisons to outside hospitals in order that operations might be performed during the year 1926; and the number of cases of childbirth, if any, that took place inside prisons during the year 1926.—Sir JOHN GILMOUR replied: Thirty-one prisoners were removed from Scottish prisons to outside hospitals during the year 1926 for the purpose of undergoing operations. No births took place in Scottish prisons in 1926.

Opium Cultivation in British India.

Mr. BARKER asked the Under Secretary of State for India the amount and value of opium manufactured by the Government of India and sold for exportation each year for the last three years; and whether any part of the opium sold for exportation under the authority of the Government of India was manufactured in the Indian States.—Earl WINTERTON replied: The following table shows the amount and value of opium manufactured by the Government of India sold for exportation in the last three years for which figures are available:—

	Chests of 140 lb. sold.	Amount realised in Rs.
1923	7954	3,13,34,650
1924	7379	2,80,06,775
1925	6119	2,54,35,350

The answer to the second part of the question is in the negative.

Population Statistics.

Mr. BROMLEY asked the Minister of Health the male and female population of England and Wales for 1913, 1919, and 1921 to 1927, respectively.—Mr. CHAMBERLAIN replied: The following is the information asked for:—

England and Wales.

Year.	Population.		Year.	Population.	
	Males.	Females.		Males.	Females.
1913	17,687,000	18,887,000	1924	18,545,000	20,201,000
1919	17,803,000	19,559,000	1925	18,602,000	20,288,000
1921*	18,075,239	19,811,460	1926	18,698,000	20,369,000
1922	18,225,000	19,933,000	1927	18,763,000	20,440,000
1923	18,342,000	20,061,000			

* Census.

With the exception of those for the year 1921, which are Census figures, the above populations are mid-year estimates. Those given for 1927 should be regarded as provisional.

Appointments.

MATHER, A., M.B., Ch.B. Liverp., D.P.H., Assistant Medical Officer of Health for the Maternity and Child Welfare Department of the Warrington Corporation.

MILLER, H., M.B., Ch.B. Glasg., and MUIRHEAD, A. J., M.D., Ch.B. Edin., District Medical Officers (Medical Referees) Scottish Board of Health.

TORRENS, D. F., M.B., B.Ch. Dub., Certifying Surgeon under the Factory and Workshop Acts for Market Rasen District (Lincoln).

WELLS, NESTA H., M.B., Ch.B. Manch., Medical Officer to the Manchester Watch Committee for the Examination of Women Suspects.

West Bromwich and District Hospital: CLOAKE, P. C. P., M.D., B.S. Lond., D.P.H., D.P.M. Camb., WILSON, A., M.B., B.S. Lond., Honorary Physicians; LEATHER, J. B., M.B., B.S. Camb., F.R.C.S. Edin., Honorary Orthopædic Surgeon; GILHESPY, F. B., F.R.F.P.S. Glasg., M.R.C.S., L.R.C.P. Lond., Honorary Ear, Nose and Throat Surgeon,

Vacancies.

For further information refer to the advertisement columns.

Barnsley, Beckett Hospital and Dispensary.—Jun. H.S. £140.
Bath, Royal Mineral Water Hospital.—Res. M.O. At rate of £130.
Bedford County Hospital.—Asst. H.S. At rate of £130.
Birkenhead and Wirral Children's Hospital.—H.S. £100.
Birmingham, Children's Hospital.—Res. M.O. £175.
Birmingham, General Hospital.—Med. Reg. and Res. M.O. £155.
Birmingham, Selly Oak Hospital, &c.—Med. Supt. £1000.
Bradford, Municipal General Hospital, St. Luke's.—H.P.'s and S.'s. Each at rate of £200.
Bristol, Southmead Hospital.—Second Asst. M.O. £200.
Carlisle, Cumberland Infirmary.—H.P. six months and then H.S. for six months. At rate of £155 and £175. Also Jun. H.S. At rate of £135.
Carmarthen, Joint Counties Mental Hospital.—Sen. Asst. M.O. £450.
City of London Maternity Hospital, City-road, E.C.—Registrar. £100.
Coventry and Warwickshire Hospital.—Two Res. H.S.'s. Each £125.
Doncaster Royal Infirmary and Dispensary.—Third H.S. At rate of £150.
Dunedin, New Zealand, University of Otago.—Sen. Demonstrator in Dept. of Pathology. £400–£500.
Fareham, Hants, Knowle Mental Hospital.—Sen. Asst. M.O. £700.
Fiji Government.—Dist. M.O. £500.
Greenock Corporation.—M.O.H. £1000.
Guildford Borough, &c.—M.O. £800.
Hereford, Herefordshire General Hospital.—H.S. £150.
Hull Royal Infirmary.—Asst. H.S. £150.
Infants Hospital, Vincent-square, Westminster.—Anæsthetist.
Leicester Royal Infirmary.—Surgical Dresser. 10*s.* 6*d.* weekly.
Liphook, Hants, King George's Sanatorium for Sailors.—Asst. M.O. At rate of £200.
Liverpool Hospital for Diseases of the Heart.—H.P. Also Clin. Assts.
Manchester Ear Hospital, Grosvenor-square.—H.S.
Manor House Hospital, Golders Green, N.W.—H.S. At rate of £200.
Newcastle-upon-Tyne, University of Durham, College of Medicine. Prof. of Anatomy.
Nottingham Children's Hospital.—Res. H.P. At rate of £150.
Nottingham General Hospital.—Res. Cas. O. At rate of £200.
Plymouth, Homœopathic and General Hospital.—H.S. At rate of £100.
Preston and County of Lancaster, Queen Victoria Royal Infirmary.—Hon. Asst. S.
Queen's Hospital for Children, Hackney-road, E.—Cas. O. At rate of £100.
Reading, Royal Berkshire Hospital.—H.S. £150.
Royal College of Physicians.—Milroy Lecturer.
Royal Free Hospital, Gray's Inn-road, W.C.—Cas. O. At rate of £150.
Scarborough Hospital and Dispensary.—Two H.S.'s. At rate of £126 each.
Sheffield Royal Hospital.—Res. Surg. O. £200.
West Ham Union.—Two Dist. M.O.'s and Pub. Vaccs. Each £800.

The Chief Inspector of Factories announces vacant appointments for Certifying Factory Surgeons at Towcester (Northamptonshire), and Crewkerne (Somersetshire).

Births, Marriages, and Deaths.

BIRTHS.

MARTIN.—On July 26th, the wife of James Purdon Martin, M.D., Corringham-road, N.W., of a son.
MOOR.—On July 28th, at Irton, Westgate-on-Sea, the wife of Dr. Frewen Moor, of a son.

MARRIAGES.

BANES—PERRY.—On July 6th, at St. Clement Danes, Strand, Charles Douglas Banes, M.B., B.S., to Beatrice Mary Perry.
MACDONALD—STUART.—On July 27th, at the Parish Church, Stroud, Alexander John Macdonald, R.E., to Stella Constance Christian Stuart, M.R.C.S., L.R.C.P., daughter of Lt.-Col. and Mrs. D. F. Stuart.

DEATHS.

CLIFFORD.—On July 26th, at a nursing home at Bickley, Kent, Maurice Clifford, M.R.C.S., L.R.C.P., aged 76.
DONKIN.—On July 26th, at Hyde Park-street, W., Sir (Horatio) Bryan Donkin, M.D., F.R.C.P., Consulting Physician to the Westminster Hospital, in his 83rd year.
EDWARDS.—On July 18th, at his residence, 11, Hawkwood-road, Albert Davies Edwards, M.B., B.S. Lond., B.Sc., D.P.H., Medical Officer of Health, Bournemouth, in his 48th year.
FOX.—On July 23rd, suddenly, at Arundel-gardens, W., Dr. Francis Fox, aged 86.
HIRSCH.—On July 28th, at the Temperance Hospital, Dr. Charles Hirsch, of Old Park House, Ifield, Sussex.
LAWSON.—On July 28th, at the London Hospital, Henry Dillon Lawson, L.R.C.P., M.R.C.S., elder son of the late Henry A. Lawson, L.R.C.P. & S. Edin.
VINRACE.—On July 26th, Felix Coulson Vinrace, M.D., F.R.C.S. Eng., of Birmingham, and Moseley.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Comments, and Abstracts.

THE BIRTH CONTROL HANDBILLS OF 1823.

BY NORMAN E. HIMES, M.A., B.Sc.,
SOMETIME ROBERT TREAT PAINE FELLOW IN SOCIAL ETHICS, HARVARD UNIVERSITY; FELLOW SOCIAL SCIENCE RESEARCH COUNCIL, U.S.A.

IN view of the interest taken by THE LANCET in the discussion of the medical aspects of birth control (see the leading article in the issue of May 28th, 1927, and the able critical review by Dr. C. P. Blacker of a recent book on the subject, which review was published in the same number); in view of the increasing attention which has been given by THE LANCET and other medical journals to the technique of contraception and its history; in view of the opinion, which is still very widespread, that the organised birth control movement is of recent origin, it might be profitable to inquire into the nature of an attempt over a hundred years ago to give the general populace, and especially the working classes, access to knowledge on what would now be called birth control—this without the coöperation, for the most part, of the medical profession.

The opinion is still very general that birth control propaganda, so-called, is a social phenomenon which had its beginnings in the last quarter of the nineteenth century. Nothing could be further from the facts. Although it is true that the popular advocacy of birth control, especially on social and economic grounds, was reinforced by the prosecution of Charles Bradlaugh and Annie Besant in 1877 for the publication of Dr. Charles Knowlton's "The Fruits of Philosophy,"[1] it is clear that the decade of the 1820's produced an agitation of singular interest not only to the physician but to the economist and sociologist. Nor did the public demand for information become quiescent between 1830 and 1877; less noisy it did become after the death of Malthus in 1834; but the passing of the figure around whom the population storm raged, the widening of the suffrage and the passage of the New Poor Law merely poured oil on the troubled sea of social difficulties; the propaganda continued, and the distribution of birth control tracts went quietly on.

We shall concern ourselves here with one phase only of the agitation of the 1820's. That phase is the handbill propaganda which seems to have been initiated by Francis Place[2]—by trade a tailor, by avocation a schoolmaster to statesmen. Place, incidentally, was united by the bonds of friendship, and, to a limited extent, by the cords of a common feeling with Thomas Wakley, the medical reformer who founded, and who for a number of years edited, THE LANCET.[3] It should be observed that Place's generalship in supervising the distribution of the broadsheets about to be described was but a small part of an organised, concerted attempt to bring a contraceptive technique to the working classes without extensive aid from the medical profession. We confine ourselves here not simply to the handbills, but limit ourselves to reproducing them and making certain observations on their social, economic and medical implications.

The question of the origin of the method recommended—the moistened sponge—the question as to whether it was introduced from France or independently hit upon here need not detain us. But it may be mentioned in passing that although Place started the rumour that Robert Owen, New Lanark philanthropist, introduced the new preventive check from France[4]; although his statement was repeated by T. J. Wooler, editor of a radical newspaper called the *Black Dwarf*[5]; and although the Owen "anecedote" was reiterated in two separate publications of Richard Carlile[6] (Place's birth control disciple), conclusive evidence has since come to light which would seem to demonstrate that if the sponge, as a contraceptive technique, had a French origin it was *not* introduced into England by Robert Owen.

James Mill, the eminent political economist, had no sooner broached the subject in his Colony article in the Supplement to the *Encyclopedia Britannica*[7] (1818) than the pros and cons of contraception seem to have been discussed in the inner circle of the Benthamite group. Place began his public advocacy of birth control in his "Illustrations and Proofs of the Principle of Population"[8] (1822) but no mention was there made of methods.

It was not until the summer of 1823 that Place initiated a distribution of handbills among the general populace.[9] Copies of these bills are preserved in what is known as the Place Collection at the British Museum.[10] They exist in two forms, printed and manuscript. The three printed forms of the handbills are addressed respectively "To the

Married of Both Sexes," [11] "To the Married of Both Sexes in Genteel Life," [12] and "To the Married of Both Sexes of the Working People." [13] The first two were neatly printed on a single sheet about 5 by 9 in., while the third was a four-page pamphlet approximately 3 by 5¾ in. Still another draft, addressed "to the mature reader of both sexes," [14] is preserved in manuscript on both sides of a single sheet 6½ by 7½ in. The handwriting in this manuscript draft is not that of Francis Place.

Four Handbills.

The handbills read as follows:—

I.

TO THE MARRIED OF BOTH SEXES.

In the present state of society, a great number of persons are compelled to make an appearance, and to live in a stile, which consumes all their incomes, leaving nothing, or next to nothing, as a provision for their children. To such persons a great number of children, is a never failing source of discomfort and apprehension; of a state of bodily, mental, and pecuniary vexation and suffering, from which there is no escape. This state of things pervades, to a very great extent, that respectable class of society called genteel. To those whose incomes depend on some particular exertion, which cannot be remitted, these distressing circumstances are from various causes, greatly increased. To those who constitute the great mass of the community, whose daily bread is alone procured by daily labour, a large family is almost always the cause of ruin, both of parents and children; reducing the parents to cheerless, hopeless and irremediable poverty; depriving the children of those physical, moral, and mental helps which are necessary to enable them to live in comfort, and turning them out at an early age to prey upon the world, or to become the world's prey.

For these general reasons, cognizable by every body, it is of the greatest possible importance that married people should be informed of the methods used to prevent such tremendous evils.

If methods can be pointed out by which all the enjoyments of wedded life may be partaken of without the apprehension of TOO LARGE *a family*, and all its bitter consequences, he surely who points them out, must be a benefactor of mankind. Such at any rate are the motives which govern the writer of this address.

The means of prevention are simple, harmless, and might, but for false delicacy, have been communicated generally. They have long been practised in several parts of the Continent, and experience has proved, that the greatest possible benefits have resulted; the people in those parts, being in all respects better off, better instructed, more cheerful, and more independent, than those in other parts where the practices have not prevailed to a sufficient extent.

The methods are two, of which the one to be first mentioned seems most likely to succeed in this country as it depends upon the female. It has been successfully resorted to by some of our most eminent physicians, and is confidently recommended by first-rate Accoucheurs, in cases where pregnancy has been found injurious to the health of delicate women. It consists in a piece of sponge, about an inch square, being placed in the vagina previous to coition, and afterwards withdrawn by means of a double twisted thread, or bobbin, attached to it. No injurious consequences can in any way result from its use, neither does it diminish the enjoyment of either party. The sponge should, as a matter of preference, be used rather damp, and when convenient a little warm. It is almost superfluous to add that there may be more pieces than one, and that they should be washed after being used.

The other method resorted to, when from carelessness or other causes the sponge is not at hand, is for the husband to withdraw, previous to emission, so that none of the semen may enter the vagina of his wife. But a little practice and care in the use of the sponge will render all other precautions unnecessary.

II.

TO THE MARRIED OF BOTH SEXES IN GENTEEL LIFE.

Among the many sufferings of married women, as mothers, there are two cases which command the utmost sympathy and commiseration.

The first arises from constitutional peculiarities, or weaknesses.

The second from mal-conformation of the bones of the Pelvis.

Besides these two cases, there is a third case applicable to both sexes: namely, the consequences of having more children than the income of the parents enables them to maintain and educate in a desirable manner.

The first named case produces miscarriages, and brings on a state of existence scarcely endurable. It has caused thousands of respectable women to linger on in pain and apprehension, till at length, death has put an end to their almost inconceivable sufferings.

The second case is always attended with immediate risk of life. Pregnancy never terminates without intense suffering, seldom without the death of the child, frequently with the death of the mother, and sometimes with the death of both mother and child.

The third case is by far the most common, and the most open to general observation. In the middle ranks, the most virtuous and praiseworthy efforts are perpetually made to keep up the respectability of the family; but a continual increase of children gradually yet certainly renders every effort to prevent degradation unavailing, it paralizes by rendering hopeless all exertion, and the family sinks into poverty and despair. Thus is engendered and perpetuated a hideous mass of misery.

The knowledge of what awaits them deters vast numbers of young men from marrying and causes them to spend the best portion of their lives in a state of debauchery, utterly incompatible with the honourable and honest feelings which should be the characteristic of young men. The treachery, duplicity, and hypocrisy, they use towards their friends and the unfortunate victims of their seductions, while they devote a large number of females to the most dreadful of all states which human beings can endure extinguishes in them to a very great extent, all manly, upright notions; and qualifies them to as great an extent, for the commission of acts which but for these vile practices they would abhor, and thus to an enormous extent is the whole community injured.

Marriage in early life, is the only truly happy state, and if the evil consequences of too large a family did not deter them, all men would marry while young, and thus would many lamentable evils be removed from society.

A simple, effectual, and safe means of accomplishing these desirable results has long been known, and to a considerable extent practised in some places. But until lately has been but little known in this country. Accoucheurs of the first respectability and surgeons of great eminence have in some peculiar cases recommended it. Within the last two years, a more extensive knowledge of the process has prevailed and its practice has been more extensively adopted. It is now made public for the benefit of every body. A piece of soft sponge about the size of a small ball attached to a very narrow ribbon, and slightly moistened (when convenient) is introduced previous to sexual intercourse, and is afterwards withdrawn, and thus by an easy, simple, cleanly and not indelicate method, no ways injurious to health, not only may much unhappiness and many miseries be prevented, but benefits to an incalculable amount be conferred on society.

III.

TO THE MARRIED OF BOTH SEXES OF THE WORKING PEOPLE.

This paper is addressed to the reasonable and considerate among you, the most numerous and most useful class of society.

It is not intended to produce vice and debauchery, but to destroy vice, and put an end to debauchery.

It is a great truth, often told and never denied, that when there are too many working people in any trade or manufacture, they are worse paid than they ought to be paid, and are compelled to work more hours than they ought to work.

When the number of working people in any trade or manufacture, has for some years been too great, wages are reduced very low, and the working people become little better than slaves.

When wages have thus been reduced to a very small sum, working people can not longer maintain their children as all good and respectable people wish to maintain their children, but are compelled to neglect them;—to send them to different employments;—to Mills and Manufactories, at a very early age.

The misery of these poor children cannot be described, and need not be described to you who witness them and deplore them every day of your lives.

Many indeed among you are compelled for a bare subsistence to labour incessantly from the moment you rise in the morning to the moment you lie down again at night, without even the hope of ever being better off.

The sickness of yourselves and your children, the privation and pain and premature death of those you love but cannot cherish as you wish, need only be alluded to. You know all these evils too well.

And, what, you will ask is the remedy?

How are we to avoid these miseries?

The answer is short and plain: the means are easy. Do as other people, do, to avoid having more children than they wish to have, and can easily maintain.

What is done by other people is this. A piece of soft sponge is tied by a bobbin or penny ribbon, and inserted just before the sexual intercourse takes place, and is withdrawn again as soon as it has taken place. Many tie a piece of sponge to each end of the ribbon, and they take care not to use the same sponge again until it has been washed.

If the sponge be large enough, that is; as large as a green walnut, or a small apple, it will prevent conception, and thus, without diminishing the pleasures of married life, or doing the least injury to the health of the most delicate woman, both the woman and her husband will be saved from all the miseries which having too many children produces.

By limiting the number of children, the wages both of children and of grown up persons will rise; the hours of working will be no more than they ought to be; you will have some time for recreation, some means of enjoying yourselves rationally, some means as well as some time for your own and your childrens' moral and religious instruction.

At present every respectable mother trembles for the fate of her daughters as they grow up. Debauchery is always feared. This fear makes many good mothers unhappy. The evil when it comes makes them miserable.

And why is there so much debauchery? Why such sad consequences?

Why? But, because many young men, who fear the consequences which a large family produces, turn to debauchery, and destroy their own happiness as well as the happiness of the unfortunate girls with whom they connect themselves.

Other young men, whose moral and religious feelings deter them from this vicious course, marry early and produce large families, which they are utterly unable to maintain. These are the causes of the wretchedness which afflicts you.

But when it has become the custom here as elsewhere, to limit the number of children, so that none need have more than they wish to have, no man will fear to take a wife, all will be married while young—debauchery will diminish—while good morals, and religious duties will be promoted.

You cannot fail to see that this address is intended solely for your good. It is quite impossible that those who address you can receive any benefit from it, beyond the satisfaction which every benevolent person, every true christian, must feel, at seeing you comfortable, healthy, and happy.

IV.

TO THE MATURE READER OF BOTH SEXES.

The object of this handbill is not to encourage vice and debauchery; but to prevent misery: not to destroy children once conceived, as many, and even married women do, to the destruction of their healths; but to prevent improper and undesired conceptions, where sexual intercourse is desirable, and wholesome, and lawful.

To accomplish this important object, an object more important than any other that affects either the society or an individual, some respectable persons in the metropolis of this country, of both sexes, among whom are included many medical men of the first rank, have enquired after a means which is here unfolded.

All animal procreation is the result of seminal contact between the sexes. With mankind and healthy married people, sexual intercourse is as unavoidable, as it is wholesome and virtuous. But it is by no means desirable, it is indeed, a continued torture, that a married woman should be incessantly breeding or bringing forth children, often unhealthy, and born with a certainty of death in infancy and nothing but the patients of pain: as often born where there are not the means of wholesome support: and, what is still worse, where the mother is of a delicate frame, and never can produce healthy children, conception is to her nothing but torture, without even the most distant prospect of pleasure or utility. Every reader will be able to look round and see an abundance of such of each of the cases here stated.

The remedy then is one, and only one, and that most simple, without even a shade of impropriety—conceptions should be prevented by the female, by absorbing the semen of the male with a small bit of moistened spunge, or with any other absorbing substance, such as lint, fine wool, cotton, flax, or what may be at hand, instead of allowing that semen to be absorbed by those vessels which lead to conceptions. Once practised, all idea of indelicacy or inconvenience will vanish. The practise has long and wisely existed on the continent of Europe, and every where the best effects arise from it. It is alone applicable to married and to virtuous people, and to healthy and pure intercourse.

Comments on the Handbills.

Interesting comparisons may be made of these handbills. First, as to methods recommended: the form first reproduced here (which was the first actually issued) mentions *coitus interruptus* as well as the sponge; the second and third refer only to the latter, while the manuscript draft recommends, as an alternative to the "moistened spunge," a tampon of "lint, fine wool, cotton, flax, or what may be at hand." As might be expected from such an early attempt, a physiological naivité pervades the bills. We are informed in the first that "the use of the sponge will render all other precautions unnecessary"; the third informs us that "the means of preventing conception are easy." There is no suggestion in this or any of the other literature of the period that the methods proposed are not "fool-proof." In the bill addressed "To the Married of Both Sexes in Genteel Life" (second form), we have an early mention, possibly the first mention, of two medical indications for contraception—contracted pelvic condition and constitutional weakness. I say it is *possible* that this is the first mention of these medical indications for contraception; I think it is quite *likely* that they have no antecedents. It has, of course, been known for centuries that a narrow pelvis increased the dangers of parturition, but the handbill referred to seems to contain the first reference to these or other conditions as medical indications for *contraception*.

From the social and economic point of view the case for contraception is much weaker in the first bill than in the two succeeding ones. The second form suggests that contraception might be used to advantage to maintain one's station in life, or in the circumstance of a low family income. Moreover, it is not altogether unworthy of note that these *may be*—no one can say conclusively that they *are*—among the chief reasons why contraception is being so widely applied today. The fact that more or less effective methods are at hand together with the realisation, first observed in the economic writings of the ancients and early Hebrews, that human wants expand faster than incomes has probably had much influence upon the readiness with which such practices have been adopted. In the bills which were issued later we have the economic case for birth control set forth more clearly. In fact, the chief arguments propounded for birth control in this period were economic. Central among them were deductions from the wages-fund theory which was supposed to mete out to the labourers their just wages in the stern, harsh ratio of numbers to capital. Even if the wages-fund be considered, Place's favourite foundation for the preventive check, he fortunately buttressed his appeal in his authentic writings with other medical, social, and economic considerations. He did not neglect health conditions and the intangible but nevertheless important factor of marital adjustment. There is a suggestion of the wages-fund argument in the handbill address to the "working people" but, in addition, it is urged that the check on large families will raise wages by curtailing the supply of labour; that it will shorten hours (presumably by increasing labours' bargaining power), and that it will open up to the working classes new possibilities for leisure with all the social consequences which might reasonably be expected to result from the profitable employment of such leisure. It is in both the later drafts that we have one of the earliest uses of the argument of birth controllers that the paramount objection to the Malthusian doctrine of "moral restraint" is that, other things being equal, irregular unions are likely to be more frequent in a society where marriages are, in general, late than in a society where there is widespread early marriage with a consequent adoption of contraception. Since it is not our purpose to examine the validity of any of these observations, we pass on to point out that the handbill addressed "To the Married of Both Sexes of the Working People" suggests an argument heard much in America, but not so frequently in this country, that large families are a cause of child labour. It is probably true that large families and child labour tend to go together; but whether the large families cause, or contribute to cause, child labour, or whether in some cases children are raised partly with the idea that their labour will be valuable is a debatable point. My own opinion is that large families are a contributory, causative factor in child labour and its continuation. So much for certain social observations which might be made on the handbills.

Although the fourth, manuscript of a handbill addressed "to the mature reader of both sexes" was never printed and distributed [15] it contains an interesting variation of statement which throws light on the relation of the medical profession to this early propaganda. It advises us that "some respectable persons in the metropolis of this country, of both sexes, among whom are included many medical men of the first rank, have inquired after a means which is here unfolded." It is true that this is the only straightforward statement in the literature of the period which *directly* associates any medical men with the *initiation or conduct* of the propaganda; but it is also interesting to note that Place sought medical advice and opinion on the subject of birth control. Unlike some modern birth control propagandists Francis Place had a research attitude; he had an Aristotelian penchant for fact collecting. Hence we find him writing to his friend Maclaren, "I have taken pains in my enquiries on this subject . . . amongst surgical and medical as [well as] amongst intelligent elderly women, and especially with two respectably clever women who are or were matrons at public lying-in hospitals." [16] Thus although there is no *record* of physicians having taken any active part in the *propaganda*, they seem to have had an indirect hand in fostering this reform. Indeed, speaking of the method proposed, the second handbill avers that "Accoucheurs of the first respectability and surgeons of great eminence have in some peculiar cases recommended it," while a similar statement appears in the first handbill.

The exact extent of the distribution of these bills is unknown. While it is easy to exaggerate their influence and the extent of their dissemination, it is clear that they were broadcasted in the provinces as well as in London. Judging by manuscript drafts of letters preserved by Place, he was instrumental in sending to Manchester, care of Mr. Edward Taylor, editor of the *Manchester Guardian*, a parcel of handbills with a letter requesting that he forward them to a Mrs. Fildes whose efforts in behalf of the working classes were well known. A note accompanied the package asking Mrs. Fildes to distribute them; highly offended, she urged Sir Henry Gifford, the Attorney-General, to prosecute but he failed to do so. Another letter of objection from Mrs. Fildes led to their publication, however, in the *Black Dwarf*, which was hostile to the distribution. Copies, nevertheless, seem to have been distributed in Manchester, if not by Mrs. Fildes, then through the instrumentality of William Longson, a journeyman weaver for whom Place at that time had done essential service. Place sent Longson handbills with a letter urging him to use them to lessen the burden of pauperism in the community. One gathers from certain mid-century Manchester newspapers recalling the early propaganda that the handbills received considerable circulation in that community. They were distributed among the Spitalfield weavers. The industrial districts were not immune to them.[17] They were sent to gentlemen who gave evidence before a Parliamentary committee on labourers' wages.[18]

This is not the place to record the "scandals" and exposures which followed, but it needs to be observed that it was not long before Place was publicly dubbed "the master spring that moves the whole infernal machine." [19] Indeed, such he was. But since we have confined ourselves here to one aspect only of the "diabolical handbills," which was, in turn, only a part of this attempt to get contraceptive knowledge to the working classes, space does not permit us to show the extent to which Place inspired and conducted discussions of the subject in working men's newspapers, how he brought several religious and political reformers to his point of view, and how, by his conversion of Richard Carlile, he set in motion that whole chain of forces which has been mainly responsible for the spread among the general populace,

both in England and in America, of a knowledge of contraception. But we should like to point out, in concluding, that it is to no small degree a consequence of the social forces released through Place, and reinforced by his disciples in England and America—a chain of events clearly traceable—that we owe our present and past decline in the birth-rate in both countries, a decline which constitutes one of the most revolutionary social changes of modern times.

References.

1. The Fruits of Philosophy; or, the private companion of young married people by Charles Knowlton, M.D., was the first book on birth control ever written by an American physician and the second American treatise on the subject—Robert Dale Owen's Moral Physiology; or, a brief and plain treatise on the population question (N.Y. 1830) having been the first. Knowlton's little book (it was 32 mo.) was originally published anonymously in N.Y. in January, 1832, a second edition with additions appearing in Boston in 1833. It was reprinted in England about 1834 and sold undisturbed for 40 years in various editions before the sensational trial of the 'seventies. Bradlaugh and Besant changed the title of their edition (Freethought Publishing Co.) to the following: The Fruits of Philosophy. An Essay on the Population Question.
2. The best biography is Graham Wallas's The Life of Francis Place. The Dictionary of National Biography has a brief but admirable account by the same author.
3. Sir Squire Sprigge: The Life and Times of Thomas Wakley, London, 1897.
4. MSS. letters in Place Collection at Hendon, vol. lxviii., p. 105.
5. Black Dwarf, vol., xi., pp. 499–500 (Oct. 1st, 1823).
6. Republican, vol. xi., No. 18, p. 556 (May 6th, 1825); cf. also Every Woman's Book; or, What is Love? London: R. Carlile, 1826, p. 24, fourth edition. No. 18 of the Republican was entirely devoted to Richard Carlile's essay on What is Love? except for a few pages. It is the first treatise exclusively devoted to a medical, social, and economic discussion of birth control in the English language and is more or less the parent of the chief birth control tracts of the nineteenth century. The essay was republished in somewhat altered form in February, 1826, as Every Woman's Book; or, What is Love? of which but one authentic copy is extant, to my knowledge, in any of the chief repositories in England or America. Francis Place, as is erroneously stated by Dr. Marie Stopes (Contraception: its Theory, History and Practice, p. 269), was not the author of What is Love?; nor was Place the author of Every Woman's Book. Place, far from being its author, actually did his utmost to dissuade Carlile from publishing it. Place may have disapproved of the vulgarity which characterised the publication, but it is more probable that he felt Carlile might wisely keep out of print until he had mastered the subject.
7. Place arranged for reprinting it as a tract; it was later bound with the reprints of James Mills' other contributions to the encyclopædia.
8. Illustrations and Proofs of the Principle of Population: including an examination of the proposed remedies of Mr. Malthus, and a reply to the objections of Mr. Godwin and others. London, 1822. See especially Section III. of Chapter V.
9. James A. Field: The Early Propagandist Movement in English Population Theory, Bulletin American Economic Association, fourth series, 1911, vol. i., pp. 207–236.
10. The materials originally collected and owned by Place are divided between the Reading Room, the Manuscript Reader's Room, and the Hendon newspaper repository. Except for stray volumes it comprises approximately 250 large tomes. Citations from volumes at Hendon are herein referred to as Hendon, followed by the volume and page numbers.
11. Hendon, vol. lxi., Part II., p. 43.
12. Loc. cit. 13. Ibid., p. 42.
14. Hendon, vol. lxviii., p. 103. At the botton of the second page of this manuscript are the words "Benjamin Aimé" in Place's handwriting and familiar ink, as if to indicate authorship by his customary method. Field, in the only accurate and authentic account of this propaganda (cited above; cf. footnote 9) observed that the Triennial Directory (London, 1822) listed Benjamin Aime (without the accent) as a musical instrument-maker. The name, however, occurs so frequently in Place's diary *with* the accent that it would seem either: (1) that the directory was inaccurate, or (2) that Place had reference to someone other than the instrument-maker. One Aimé frequently called upon Place with French books, especially at the time when Carlile was seeking Place's advice on Every Woman's Book.
15. One or more of the handbills were printed in several journals of the time, but in no case did the manuscript form ever appear. In fact, Carlile, in May, 1825, stated that he had seen only two forms. (Republican, vol. xi., p. 561.)
16. Place to Maclaren, Hendon, vol. lxii., p. 163. Richard Carlile said he "studied anatomy in the regular way" (Old Monthly Magazine, May, 1835). The evidence of Place's fact-collecting propensities are the 250 tomes in the British Museum. His "Notes on Surgery and Medicine" are to be found in Add. MSS. 27, 828 (vol. iv.), section 5.
17. See the letter of William Smith of Bolton to Place in Hendon, vol. lxi., Part II., p. 60, quoted in part by Field, ibid., p. 225. Carlile said that they circulated by thousands in the populous districts of the North. (Republican, vol. xi., p. 555.)
18. Hendon, vol. lxviii., p. 119. 19. Bull Dog, pp. 109.

SUBSTITUTES FOR WINDOW GLASS.

APART from the beneficial effects of the sun's rays in actual disease the prophylactic use of sunlight becomes increasingly important as towns expand and open spaces disappear. The difficulty of providing buildings with windows that will not seriously cut down the shorter rays of the sun's spectrum has now been tackled both in a scientific and commercial manner, with the result that for glazing windows materials are now available which are satisfactorily transparent not only to the visible but to the ultra-violet rays of sunlight.

A report published in the *Journal of the American Medical Association* of May 14th, under the ægis of the Association's Council of Physical Therapy, may be taken as a scientific assay of the substitutes for window glass available in the United States. The report deals with two actual glasses (Vitaglass and Corning glass) and two glass substitutes (Celoglass and Flexoglass). Of Vitaglass there are two kinds, clear and "cathedral" (the latter being a merely translucent form), and these varieties are presumably the same as those sold in this country. Corning glass transmits 75 per cent. of the shortest rays of the solar spectrum (3000 A.U.), whilst Vitaglass transmits 30 per cent. of the same wave-length, ordinary glass being quite opaque to this part of the spectrum. Since it is the shorter wave-length rays that have the greatest biological value, both these special glasses will be valuable where the object is to get the full physiological value of sunlight.

Flexoglass is described as thin, fairly loosely woven cloth impregnated with a paraffin-like substance; Celoglass is a fine wire mesh supporting a celluloidinous substance, and is apparently similar to the material sold in this country under the name of Windolite. Both these substitutes allow a certain proportion of the actinic rays to pass, but as they are of variable thickness and diffusing power, it is impossible to record their transmission spectra with the same accuracy as that of a true glass.

In view of the well-established fact that it is the shorter ultra-violet rays of sunlight that make heliotherapy valuable in the prophylaxis and cure of rickets, it seems hardly necessary to have tested the value of these glass substitutes biologically. The report, however, furnishes the confirmatory evidence that when these materials were arranged as screens in front of experimental cages, fowls so screened were protected from "leg weakness," the avian equivalent of rickets. Corning glass was not tested in this way, but in view of its marked transparency to the ultra-violet rays at about 3000 A.U. it may be confidently supposed that it is at least as efficient as the other materials tested.

FOAMING AT THE MOUTH.

CORRESPONDENTS have sent us "A Talk on Fraudulent Bread," by Mr. Ellis Barker, and have asked us if that observer is correct in saying: "Unfortunately, most doctors know nothing or next to nothing about dietetics and they themselves die like flies from diseases consequent upon faulty nutrition." Mr. Ellis Barker states in the next sentence to this quotation that he has already shown these things to be true, from which it must be concluded that he has had access to vital statistics with which others are unfamiliar, though it need not be assumed that he has understood them. The best advice that medical men can give to those who are perturbed by such articles is that they should insist on being informed on what basis of fact or on what accepted doctrines of chemistry wholesale accusations of ignorance and fraud are being made; they should ask to be supplied with the names and addresses of the chemical manufacturers "who are spreading disease, suffering, and death among millions," and the names and burial-places of the doctors who have died in epidemic proportions of nutritional diseases. Some names should be forthcoming both from a class which can slay by millions and a profession which is dying like flies.

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED JULY 23RD, 1927.

Notifications.—The following cases of infectious disease were notified during the week:—Small-pox, 195 (last week 156); scarlet fever, 1575; diphtheria, 852; enteric fever, 132; pneumonia, 612; puerperal fever, 36; puerperal pyrexia, 98; cerebro-spinal fever, 7; acute poliomyelitis, 10; acute polio-encephalitis, 1; encephalitis lethargica, 35; dysentery, 6; ophthalmia neonatorum, 95. There were no cases of cholera, plague, or typhus fever noified during the week.

Deaths.—In the aggregate of great towns, including London, there was no death from small-pox, 2 (1) from enteric fever, 29 (3) from measles, 3 (3) from scarlet fever, 24 (4) from whooping-cough, 30 (8) from diphtheria, 38 (7) from diarrhœa and enteritis under two years, and 25 (4) from influenza. The figures in parentheses are those for London itself.

THE LANCET

A Journal of British and Foreign Medicine, Surgery, Obstetrics, Physiology, Chemistry, Pharmacology, Public Health, and News.

Telegrams—LANCET, WESTRAND LONDON *Telephone*—GERRARD 4314 & 4315. *Offices*—423, Strand, London, W.C.

No. VII. OF VOL. II., 1927. **No. 5424. Vol. CCXIII.** LONDON, SATURDAY, AUGUST 13, 1927 Founded 1823. Registered as a Newspaper. Published Weekly. **Pp. 112—Price 1s.** Annual Subscription, Inland £2 2s. Abroad £2 10s.

NOW READY.

ROWLANDS AND TURNER'S
NEW EDITION of
THE OPERATIONS OF SURGERY.
900 Illustrations. 43 in Colour. 70s.
London: J. & A. Churchill, 7, Great Marlborough-street, W. 1.

OXFORD MEDICAL PUBLICATIONS
SEE PAGE 3.

NEURITIS AND NEURALGIA.
By
WILFRED HARRIS, M.D., F.R.C.P.
Senior Physician to St. Mary's Hospital, and to the Hospital for Epilepsy and Paralysis, Maida Vale.
Cloth. Demy 8vo. 436 pages. Illustrated. Price 12s. 6d. net.
Oxford University Press, Amen House, London, E.C.4.

NOW READY. 4/6 net.
THE TREATMENT OF
CHRONIC DEAFNESS.
BY THE ELECTROPHONOIDE METHOD OF ZUND-BURGUET.
By GEORGE C. CATHCART, M.A., M.D.,
Consulting Surgeon to the Throat Hospital, Golden-square.
Oxford University Press, Amen House, London, E.C.4.

NEW AND ENLARGED EDITION. With an additional plate at 15s. net; post free, inland 15s. 9d., abroad 16s. 6d.
CONTRACEPTION
ITS THEORY, HISTORY AND PRACTICE.
A Manual for the Medical and Legal Professions and all Social Workers.
By MARIE CARMICHAEL STOPES, D.Sc.
Fellow of University College, London.
Introduction by the late Prof. Sir WILLIAM BAYLISS, F.R.S.
Introductory Notes by Sir JAMES BARR, M.D., Dr. C. ROLLESTON, Dr. JANE HAWTHORNE, and "Obscurus."
A few press opinions of the 1st Edition:
MEDICAL TIMES.—"The book is unique and marks a new era."
THE LANCET.—"Much of the evidence contained in the book is quite unobtainable elsewhere."
Sir Archdall Reid in NATURE.—"Some such book as this had to be written, and this is very well written."
MED. REV.—"Should be read by all interested in racial welfare."
This book is the first manual on the subject, and is packed with both helpful and interesting matter and much that is new and noteworthy.
London: John Bale, Sons & Danielsson, Limited, 83-91, Great Titchfield-street, Oxford-street. W. 1.

BY LIEUT.-COL. ROBERT HENRY ELLIOT
M.D., B.S. Lond., F.R.C.S. Eng., I.M.S. retd.
A TREATISE ON GLAUCOMA.
2nd Edition, Revised and Enlarged. 30s. net.
TROPICAL OPHTHALMOLOGY.
With 7 Plates and 117 Illustrations. 31s. 6d. net.
Spanish and French Editions, 1922.
THE CARE OF EYE CASES: 12s. 6d. net.
A MANUAL FOR NURSES, PRACTITIONERS, AND STUDENTS
Chinese Edition. Oxford University Press.
GLAUCOMA 4s. net.
A HANDBOOK FOR THE GENERAL PRACTITIONER.
THE INDIAN OPERATION OF COUCHING FOR CATARACT
7s. 6d. net. H. K. Lewis and Co., Ltd.

NOW READY. SECOND EDITION. REVISED AND ENLARGED.
NEW EDITION — URINARY SURGERY.
By W. K. IRWIN, M.D., F.R.C.S.
Assistant Surgeon, St. Paul's Hospital for Genito-Urinary Diseases.
"Clearly written . . . . . eminently practical . . . . . we can thoroughly recommend it."—GLASGOW MEDICAL JOURNAL.
Crown 8vo. Pp. viii. + 271. Price 10s. 6d. Postage 6d.
Baillière, Tindall & Cox, 7 & 8, Henrietta-st., London, W.C. 2

By LESLIE THORNE THORNE, M.D., B.S., &c.
NAUHEIM TREATMENT OF DISEASES
OF THE HEART AND VESSELS IN ENGLAND.
Sixth Ed. Enlarged and re-written, much new matter.
Pp. viii. + 232. With 27 Photographs of RESISTANCE-Exercises and 108 other Illustrations. Polygraphs, &c. Price 7s. 6d. net.
"It is the best and most practical work on the subject."
—WEST LONDON MEDICAL JOURNAL.
Baillière, Tindall & Cox, 8, Henrietta-st., Covent Garden, London, W.C.

NOW READY.
THE CONDUCT OF MEDICAL PRACTICE
BY
THE EDITOR OF "THE LANCET"
AND EXPERT COLLABORATORS.
See pages 4 & 5.

ON THE BREAST.
By DUNCAN C. L. FITZWILLIAMS, C.M.G., M.D., Ch.M., F.R.C.S. Ed. and Eng.
Royal 8vo. 456 pp. 2 Plates, 166 Illustrations. 30s. net.
LANCET.—"The book is packed with accurate clinical observations and bears evidence throughout of extensive clinical experience and wide reading on the part of the author."
Wm. Heinemann (Medical Books) Ltd., 20, Bedford-street, London, W.C.2.

TO ADVERTISERS

THE MANAGER BEGS TO ANNOUNCE THAT

THE STUDENTS' NUMBER OF THE LANCET

FOR THE MEDICAL SESSION 1927–1928
WILL BE ISSUED ON FRIDAY, AUGUST 26th.

Advertisements should be forwarded without delay to the Office, 423, Strand, London, W.C.

MEDICAL LIBRARY 1927 BIOLOGICAL DIVISION

Schering

Neutralon

TRADE MARK

in

The Hyperacidity of Pregnancy

"I look upon the right diet ..., as the first line of defence against HYPERACIDITY, but where further treatment is necessary I have found **NEUTRALON** superior to any other preparation. My results .... very satisfactory, **as an increasing dose is not necessary,** which is the objection to the use of ordinary Sodium Bicarbonate prescriptions."

———, M.R.C.S., L.R.C.P.

NO ERUCTATION. NO CONSTIPATION. NO PURGATION.

PACKINGS.—Tins of 50 and 100 grammes. Boxes of 21×3 gramme powders.

Samples and Literature on request from :

SCHERING LIMITED, 3, Lloyd's Avenue, LONDON, E.C.3

Telephone No.—ROYAL 7580. Telegraphic Address—SCHEROPHA, FEN, LONDON.

ORDER ZŌPLA STRAPPING—ALWAYS!

The one really satisfactory plaster, self-adhesive, does not irritate, has a powerful grip, so does not slip. On strong cloth and on felt, &c.

SAMPLES ON REQUEST · ALL SIZES SOLD

Use also our Holland Strapping—still the best.

LESLIES LTD., High Street, Walthamstow, LONDON, E.17.

PEPTONE "STERULES" in ASTHMA (R.T.M.)

The treatment has been applied not only to **asthma,** but also to such of its congeners as **hay fever,** associated **skin affections, angio-neurotic oedema, cyclic vomiting, periodic diarrhoea,** and the **migraine-epilepsy** syndrome; in short, to such conditions as exhibit an **anaphylactic character** or **sensitisation.**

Graded Series of 10 Sterules, 7/6. Continuation Course of Six Sterules—per box, **6/6.**

Also Two New Shading-off Courses (see *B.M.J.*, March 7, 1925, p. 448), for Intravenous use : CLASS I. Box of 6 Sterules, **6/6.** II. Box of 3 Sterules, **3/6.**

Leaflet on application.

W. MARTINDALE, *Manufacturing Chemist,* 10, NEW CAVENDISH ST., LONDON, W.1.

Telegraphic Address : MARTINDALE, CHEMIST, LONDON. *Telephone Nos. : LANGHAM* **2440** *and* **2441.**

THE LANCET

No. 5424 LONDON, SATURDAY, AUGUST 13, 1927. CCXIII.

CONTENTS

THE WHOLE OF THE LITERARY MATTER IN THE LANCET IS COPYRIGHT.

ARRIS AND GALE LECTURE on the Toxæmia of Acute Intestinal Obstruction. By R. ST. LEGER BROCKMAN, F.R.C.S.—(*Illustrated*) 317

ORIGINAL ARTICLES.

Studies in the Acid-Base Equilibrium in Psychoses. By ISABELLA ROBERTSON, M.D.—(*Illustrated*) 322

Association of Low Blood Cholesterol with the occurrence of Fits in Epileptics. By S. H. G. ROBINSON, M.B., W. RUSSELL BRAIN, M.D., and H. D. KAY, M.Sc., Ph.D.—(*Illustrated*) 325

Experimental Cancer: Studies on the Action of Glycerine on Tissue Cells. By ARTHUR COMPTON, M.D., D.Sc.—(*Illustrated*)..... 327

CLINICAL AND LABORATORY NOTES.

Treatment of Sarcomatosis Cutis and Mycosis Fungoides by X Rays. By ARTHUR WHITFIELD, M.D. 328

Toxic Neurolabyrinthitis following Induction of Labour by Quinine. By F. PEARCE STURM, M.Ch. 329

REVIEWS AND NOTICES OF BOOKS.

The Thomas Splint. By Meurice Sinclair, C.M.G., M.B., Ch.B. 337

Die Gastroskopie. By Dr. Roger Korbsch 337

General Medical Practice. By W. Stanley Sykes, M.B., B.Ch., D.P.H.... 338

Anatomische Grundlagen wichtiger Krankheiten. By Dr. Leonhard Jores 338

Psycho-Pathology of Tuberculosis. By D. G. MacLeod Munro, M.D... 338

Birth Control. By Johann Ferch. Translated by Christian Roland..... 338

Diagnostik und Therapie der Magenkrankheiten. By Prof. Dr. I. Boas.... 339

Nursing Mental and Nervous Diseases. By A. C. Buckley, M.D..... 339

British Journal of Ophthalmology 339

LEADING ARTICLES.

THE TRANSFER OF PRACTICES: A LOAN SCHEME..... 341

THE DANGEROUS DRUG TRAFFIC 341

INTESTINAL OBSTRUCTION. 342

ANNOTATIONS.

Sleep 343

Artificial Œsophagus..... 343

Prosperous Medical Schools in America 344

Medical Munitions in War 344

Red Cell and Hæmoglobin Normals 344

Low Blood Pressure..... 345

Dried Eggs as Food..... 345

Hospital Coördination.... 345

Prof. Rudolph Magnus.... 346

MODERN TECHNIQUE IN TREATMENT.

CCXXXVI.—The Treatment of Sinuses. By Prof. G. GREY TURNER, M.S., F.R.C.S.—(*To be concluded*) 347

PUBLIC HEALTH SERVICES.

Reports of Medical Officers of Health: West Ham.—Blackburn.—Northampton.—Lincoln.—Eastbourne.—Colchester 352

Reports of School Medical Officers: Edmonton.—Norfolk.—Colchester.... 354

Mental Hospital Reports .. 354

Vital Statistics of England and Wales..... 355

NEW INVENTIONS.

An Integrating Device for Closed-Circuit Respiration Apparatus. (H. F. Pierce, B.A., B.Sc.).—(*Illustrated*)..... 340

SPECIAL ARTICLES.

British Medical Association: Annual Meeting at Edinburgh: Section of Surgery: Tuberculous Disease of the Kidney. Surgery in Treatment of Toxic Goitre.—Chronic Appendicitis.. 330

Exhibition of Drugs, Surgical Instruments, Foods, and Appliances.—(*To be concluded*) ... 335

The Geography of Mortality from Bronchitis and Pneumonia.—(*Illustrated*) 348

Berlin: Official Recognition of "Natural Medicine". 349

Paris: Evolution of the Spirochæte 350

Medicine and the Law: Death Accelerated by Ether.—The Meaning of "Drunk."—Exorcising Evil Spirits..... 351

PARLIAMENTARY INTELLIGENCE.

Notes on Current Topics: Scottish Board of Health.—Nursing Homes (Registration) Bill 356

House of Commons: Approved Societies and Dental Treatment.—Effects of Insulin Treatment.—Diphtheria in Dagenham.—Importation of Cocaine and Cocaine Hydrochloride.—Male and Female Population of Scotland..... 358

CORRESPONDENCE.

The Super-Ego of Freud (Surg. Rear-Admiral C. M. Beadnell)..... 359

Coronary Thrombosis (Dr. Ambrose W. Owen) 359

Treatment of Pernicious Anæmia by Raw Liver (Dr. F. G. Crookshank).. 360

Quinine and Chinosol Suppositories (Dr. Norman Haire) 360

Asthma and Arthritis in Alternation (Dr. Sylvia B. Wigoder 360

OBITUARY.

Charles Wilberforce Daniels, M.B., F.R.C.P.—(*With Portrait*)..... 361

Lieut.-Col. Harry William Pierpoint, F.R.C.S. 361

William Jones Greer, F.R.C.S. 362

Felix Coulson Vinrace, M.D., F.R.C.S. 362

THE SERVICES.

Royal Naval Medical Service.—Royal Army Medical Corps.—Royal Air Force 348

MEDICAL NEWS.

Roy. Coll. Phys. Lond..... 362

Roy. Coll. Phys. Lond. and Surg. Eng. 363

Roy. Coll. Phys. Edin..... 363

University of London.... 364

Royal South Hants Hospital 324

Addenbrooke's Hospital: Proposed Enlargement.. 329

Donations and Bequests.. 337

Condensed Milk..... 346

Oldham Royal Infirmary.. 351

Crumpsall Infirmary, Manchester..... 364

Union for Smaller Hospitals 364

Egyptian Medical Congresses 364

Guy's Hospital 364

Fellowship of Med. and Post-Grad. Med. Assoc. 364

St. Thomas's Hospital Dinner 364

Livery Companies at Golf 364

Hospital Coördination at Sheffield 366

Manchester Babies Hospital 366

NOTES, COMMENTS, AND ABSTRACTS.

A Health Report from Nigeria 365

Bite of a Madd Dog..... 365

Infamous Conduct 366

Welfare of Miners..... 366

Goitre among Manchester Children 366

Esperanto and Medicine... 366

Medical Diary 364

Appointments 364

Vacancies 365

Births, Marriages, Deaths.. 365

THE LONDON AND COUNTIES MEDICAL PROTECTION SOCIETY LIMITED.

(FOUNDED 1892.)

Registered Office: VICTORY HOUSE, LEICESTER SQUARE, W.C.2.

Telegrams: "MEDICAVERO, WESTRAND, LONDON." *Telephone:* REGENT 0611.

President: Sir JOHN ROSE BRADFORD, K.C.M.G., C.B., C.B.E., M.D., F.R.C.P., F.R.S.
Treasurer and Chairman of Council: C. M. FEGEN, M.R.C.S., L.R.C.P., D.P.H.
Trustees for the Reserve Fund:
Rt. Hon. LORD DAWSON, G.C.V.O., K.C.B., M.D., F.R.C.P. Sir ANTHONY A. BOWLBY, Bart., K.C.B., K.C.M.G., K.C.V.O., F.R.C.S. Sir HARRY BALDWIN, C.V.O., M.R.C.S., L.D.S.

The Society was founded for the following purposes: To protect, support and safeguard the character and interests of legally qualified Medical and Dental Practitioners; to advise and assist Members of the Society in matters affecting their professional character and interests; and to indemnify them in regard to actions, etc., undertaken on their behalf.

SUBSCRIPTIONS. There is an Entrance Fee of 10s., and an Annual Subscription of £1.

The Invested Funds of the Society exceed £38,100. The Society is fully insured to an unlimited extent against all adverse costs and damages which may be awarded against Members in any action which the Society undertakes on their behalf.

Forms of application for Membership and full particulars may be obtained from the Secretaries at the above address.

SECOND EDITION. Fully Revised. With 182 Illustrations. Demy 8vo. 350 pp. 15s. net; postage 6d.

AN
INTRODUCTION TO SURGERY
By RUTHERFORD MORISON,
M.A., D.C.L., LL.D., M.B., F.R.C.S. (Edin. and Eng.),
Consulting Surgeon, Royal Victoria Infirmary, Newcastle-upon-Tyne; Emeritus Professor of Surgery, Durham University.

With the Collaboration of
CHARLES F. M. SAINT,
C.B.E., M.D., M.S. Durh., F.R.C.S. Eng.,
Professor of Surgery, University, Cape Town.

"No book could be read with more profit by the student new to clinical work, and this second edition will assuredly be welcomed."—LANCET.

"We wish that every student beginning the study of surgery could have this little work."—BRITISH MEDICAL JOURNAL.

Ninth Edition. Fully Revised. With 343 Text Illustrations and 14 Plates. Demy 8vo. 634 pp. 21s. net; postage 9d.

PYE'S
SURGICAL HANDICRAFT
A MANUAL OF SURGICAL MANIPULATIONS, MINOR SURGERY, AND OTHER MATTERS CONNECTED WITH THE WORK OF HOUSE SURGEONS, SURGICAL DRESSERS, ETC.

Edited and largely re-written
By W. H. CLAYTON-GREENE,
C.B.E., B.A., M.B., B.Ch.Camb., F.R.C.S.,
Late Surgeon to St. Mary's Hosp., London, and late Lecturer on Surgery in the Medical School, etc.

With special chapters by distinguished Contributors.

"Full of information invaluable to the student, the house surgeon, and the general practitioner."—LANCET.
"Should always be at hand."—BRIT. MED. JOUR.

Bristol: JOHN WRIGHT & SONS Ltd. *(ILLUSTRATED CATALOGUE FREE.)* **London: SIMPKIN & CO. Ltd.**

H. K. LEWIS & Co. LTD.
PUBLISHERS AND BOOKSELLERS.
SECOND-HAND DEPARTMENT: 140, Gower Street.

MEDICAL AND SCIENTIFIC CIRCULATING LIBRARY.
ANNUAL SUBSCRIPTION FROM ONE GUINEA.

LIBRARY READING ROOM (First Floor) open daily to SUBSCRIBERS.

136, Gower Street, London, W.C.1

Price 1s. With Illustrations.
APPLICATION OF TRUSSES
to HERNIÆ. Clinical Lecture delivered at King's College Hospital. By the late JOHN WOOD, F.R.S., Senior Surgeon to King's College Hospital. Reprinted from "Medical Examiner."
London: Matthews Brothers, 10, New Oxford-street, W.C.

STAMMERING, SPEECH DEFECTS
BEHNKE METHOD. Estab. 1882. CASES, non-resident, treated at 39, Earl's Court Square, S.W. 5, and, in residence, in the Summer holidays at Miss Behnke's house on the Chilterns.
"Pre-eminent success in the education and treatment of stammering and other speech defects."—*The Times.*
"Thoroughly physiological principles."—*The Lancet.*
"The method is scientifically correct and perfectly effective."—*Guy's Hospital Gazette.*
"STAMMERING, CLEFT PALATE, SPEECH LISPING." 3s. 9d.
of Miss BEHNKE, 39, Earl's Court Square, S.W. 5.

"MEDICATED INHALATION THERAPY"
HANDBOOK.
(Notes on Technique and Indications of Treatment.)
Sent free on application to
THE LONDON INHALATORIUM, 30, Grosvenor Place, S.W.1.

The Prescriber
The Physician's BEST Guide in Modern Treatment.
Published MONTHLY—20s. per annum, post free.
Features for August, 1927.
RADIUM THERAPY—TUBERCULOSIS.
Post free, 2s. 2d.
"THE PRESCRIBER" Offices, 6, South Charlotte St., EDINBURGH.

New Work *Just Published*
By SIR THOMAS LEWIS
The Blood-Vessels of the Human Skin and Their Responses
Crown 4to. 326 pages+xv. Figs. 76.
Price 37/6, Postage 1/-
Specimen pages, post free, from the Publishers,
SHAW & SONS, Ltd., 7, 8, & 9, Fetter Lane, LONDON, E.C.4.

DISPENSING BOTTLES
MEDICAL FLATS, VIALS, POISONS, &c.
Good Quality, Accurate Measure, at LOWEST REDUCED PRICES.
Try our OVAL FRONTED 6 oz. & 8 oz.
Prompt Deliveries from Stock. *Estab. 100 years.*
I. ISAACS & CO.
NORTH LONDON GLASS BOTTLE COMPANY
London Office—106, MIDLAND ROAD, N.W.1
Warehouse and Stores—
L. M. & S. Rly. Goods Depot, St. Pancras.
Telephone— Museum 4209. *Telegrams*— Isaglasbot, Kincross, London

Arris and Gale Lecture

ON THE

TOXÆMIA OF ACUTE INTESTINAL OBSTRUCTION.

Delivered at the Royal College of Surgeons of England on March 18th, 1927,

BY R. ST. LEGER BROCKMAN, M.CHIR. CAMB., F.R.C.S. ENG.,

ASSISTANT SURGEON, SHEFFIELD ROYAL INFIRMARY; LATE HUNTERIAN PROFESSOR, ROYAL COLLEGE OF SURGEONS.

MODERN surgery has reached a high pinnacle of fame and perfection, and whilst its achievements in many branches may justify a large measure of pride and of hope, the almost stationary rate of mortality in acute obstruction wrings from all of us a confession of the failure of present modes of treatment, and further it forces an acknowledgment of the fallacy of the basic ideas from which these methods spring. In the struggle to right the wrong in the bodies of his fellow-men the operating surgeon depends for his increasing knowledge and inspiration upon two main sources of supply; the lessons of clinical work as judged by results and the light gained from experiments on animals. Confronted by undoubted failure it behoves us at the outset carefully to examine the use made of these founts of learning and thereby to see if possible where and why we have gone astray.

The forward march of operative technique has been so astounding and so rapid that our perspective of what surgery really is has been thrown out of alignment; and our judgment of what it can in truth perform has become somewhat biased. It can do and has done so much that it has rather been expected to do all. On analysis surgery is of the mechanical *mechanical*, and its lasting kingdom can only be in those realms of disease which have an origin fundamentally mechanic. It is true that the cause of acute obstruction is of this nature, but the cause of ileus is not, since this can and does appear in peritonitis, in uræmia, and in other pathological states devoid of any mechanical interference with the proper working of physiological processes. Organic obstruction is one thing which must ever be submitted to manual repair, but ileus is always ileus; it is always paralytic in nature, and has a much more fundamental basis of being, and in its cure surgery can, I believe, have no real part. It is for this reason that enterostomy, enteroanastomosis, jejunostomy, and the like procedures have so signally failed us in our efforts to cope with this condition. From a realisation of this impotence there goes up the cry for earlier diagnosis as the only means of escape. From the viewpoint of scientific advancement it is a cry of despairing ignorance, but from that of clinical surgery it is truth; for instrumental methods will never be able to do more than put right the mechanical upset before the serious onset of ileus. Also, however early the diagnosis may be made in cases of organic obstruction, there will yet remain the paralytic ileus of metabolic origin, still as deadly as ever and still as misunderstood.

Animal experiments have produced many theories in explanation of the toxæmia of this condition. Their number and variety are alone sufficient proof of their fallacy. In turn there have been suggested intestinal decomposition, bacteræmia, the proteose level of the duodenum; autolysis of mucosa, interference with circulation or with nervous reflexes. These and others have one point in common which stands out clearly on close investigation; each and all must be the result of some basic upset of physiology, itself the prime moving cause.

THE BASIC CAUSE OF ILEUS.

There are, however, two views on this subject which are much to the fore at the present time, the action of bacteria, especially of the anaerobic variety, and the toxic element found in obstruction fluid. A careful analysis of these will, I think, take us some way along the road in our search for a more basic cause of ileus.

In 1882 Koch discovered the tubercle bacillus, but the disease associated with it still works havoc among the nations. The only reasonable explanation of this must lie in the fact that the organism is not of itself the first cause of the disease. This must primarily be due to some upset of normal physiology, to some discord in the harmony of health which allows the organism free play. This is true of all pathogenic bacteria. What of the virulence of these workers of evil in our bodies? Through a series of laboratory subcultures this is lost, and it is restored by passage through a number of living animals. So even the virulence of the organisms is dependent upon some close association with the vital processes of a possible host.

In this light consider the bacterial content of the alimentary canal. In health the upper part is amicrobic, whilst the number and the virulence of the organisms increase along the length of the intestine from above downwards. In obstruction the function of the muscular wall of the intestine is upset from below upwards, and with this procession of loss of normal physiology goes the growth in the number and virulence of the bacteria. In a state of health there is then, according to this argument, some physiological process in the upper portion of the small intestine which is inimical to the life and growth of micro-organisms, and the intensity of this protective action diminishes along the length of the canal. In the general plan of concentration of a particular function in a particular organ, to supply the needs of the whole body, is it possible that this mechanism operates locally in the upper portion of the small intestine for the necessity of the whole organism? Such a theory offers a really basic explanation of the early gravity of high obstruction as compared with one low down, since the higher up the initial site of obstruction is placed, the greater will be the loss of this vital physiological function at the commencement of the trouble.

In the fluid found in obstructed intestine, whether of organic, paralytic, or experimental origin, there is present a toxic element which on intravenous, intraperitoneal, or subcutaneous injection causes death with symptoms like those of the original disease. There are, moreover, definite findings associated with the death following the injection of this fluid which are seen on post-mortem examination. The gastric mucosa shows marked hæmorrhagic changes; the pylorus stands out by reason of the pale pink colour of the mucous membrane which covers it, whilst just beyond the level of the sphincter there is a sharply drawn line where the dark red injection recommences in the duodenum. Here it is as marked as it is in the gastric mucosa, but the intensity of the damage fades in the lower part of the small intestine. The mucosa of the pylorus seems untouched; no ulcers commence at the pylorus; the whole picture is brimming over with suggestion. There is strong evidence that this poison is not formed in dead tissue but that its production is dependent on the vital activity of the cells. Van Beuren [1] relates the case of a girl who died of ileus 48 hours after an appendicectomy; the fluid from her intestine killed a dog in three and a half hours. For class purposes he made a volvulus in a dog, the animal dying in 18 hours. There had been complete stasis of contents and of circulation since a ligature was tied tightly round the base of the volvulus. The fluid from this gangrenous loop was non-toxic when injected into the veins of another animal. Braeze,[2] in working with a duodenal loop, which could be emptied at will through the abdominal wall, found it was not until after the lapse of about 36 hours that there was a demonstrable amount of toxic substance in the loop fluid. There also appears to be agreement among observers that the degree of

toxicity does not bear any constant relation to the amount of damage sustained by the tissues of the loop. Ellis [3] has succeeded, by extraction with boiling water and the precipitation with alcohol, in isolating a toxic material from obstructed intestine of both organic and paralytic origin. On injection this gave rise to death with symptoms of acute ileus. He has managed to carry the original dose of toxin injected through a series of four dogs—that is to say, a dose of toxin from a case of ileus was injected into the first dog and the extract of the duodenum of this dog after death was put into the second dog and so on. Of this series of four dogs so dealt with, the first three died in the usual way, whilst the fourth, although exhibiting marked symptoms, eventually recovered. Ellis's comments are as follows:—

"These experiments also show that the toxin circulating in the blood stream can apparently excite the cells of the intestinal mucosa to the formation of the poison, for if one considers the small amount of the toxin solution injected, and the large amount of dilution which must occur in the blood stream and in the tissues, and the loss incident to the necessarily crude method used in recovering the toxic element from the intestinal content, then one must conclude that it is not possible that we are dealing with the recovery of the original dose."

Objection has been raised to conclusions drawn from these results of intravenous injections on the ground that this does not occur in actual cases. It is stated with truth that this toxin is not absorbed from healthy intestine, and since its presence cannot be denied, a damage to the mucous membrane has been demanded as a necessity for its absorption. What damages the mucosa? So once again we are forced back to bed rock if we are really to solve the problem in a fashion which will help us in treatment. Now how are we to attempt an explanation of this series of experiments of Ellis?

It appears that a small amount of the toxin injected into an animal is capable of starting a vicious circle which results in death; in the duodenum of such an animal a similar poison is found in increased amounts. The primary dose has resulted in a generation of itself.

EXPERIMENTAL WORK.

Now to turn from the universe of speculation to the closer confines of experimental and clinical facts.

The starting-point of my endeavours in this direction was the work of Whipple and his co-helpers.[4 5 6] These observers isolated a washed loop of the duodenum, thereby excluding any possibility of decomposition of intestinal contents. A ligature was tied round the gut just below the entrance of the bile and pancreatic ducts, whilst a second was placed beyond the duodeno-jejunal flexure. The continuity of the alimentary canal was reconstructed by the performance of a posterior gastro-enterostomy beyond the lower obstructing ligature (Fig. 1). These animals all died within three days at the outside, whilst many of them did not survive longer than 48 hours. The dogs died with symptoms of an acute intoxication, subnormal temperature, fall in blood pressure, and venous congestion. The mucosa and the fluid content of the loop contained a toxic body which caused death in a few hours when injected into another dog. The time of survival depended on whether the fluid was put in by vein, peritoneum, or subcutaneous injection. If Whipple destroyed the mucosa by means of a chemical such as sodium fluoride, prior to isolating the loop, he could no longer find any toxic substance in the fluid. Having excluded all food remnants and the digestive juices of the liver and pancreas, he concluded that the poison was formed by the action of the bacteria on the cells of the mucous membrane, and that on absorption into the circulation it caused the death of the animal. Now it has been shown that an animal can live for weeks or even months with a similar loop formed in the lower ileum or colon.[7] It is hard to explain how the bacteria-laden loop of the lower bowel is thus innocuous whilst that of the previously sterile duodenum is so rapidly fatal, if the bacteria really do play a primary part in the formation of this poison. So once again we are thrown back on the mucosa of the duodenum and some upset of its normal functioning.

In the first place I repeated the exact procedure of Whipple (Fig. 1). To obtain a complete closure of the lumen of the intestine without cutting through into the interior of the gut I used, as did Whipple, a thick strand of string (Fig. 2). This was tied as tightly as possible, and then it was buried by bringing the peritoneum of the intestine above and below together with a continuous Lembert suture. I have performed this operation without any additions or subtractions on three dogs. The animals all died as Whipple describes within 36 hours. There is, however, one feature of their death which is worth noticing. In the case of two of these dogs I saw the animals within 10 and within 15 minutes of death respectively. They were obviously very ill, very toxic, and vomiting persistently. When I called to them, however, they had strength to get up on their feet and walk across the cage to me, and when I patted them they were sensible enough to wag their tails. Yet within those few minutes they were dead. Something had suddenly failed and the vital processes had stopped. It is not absolutely unlike what happens at times in the clinical experience of us all. The condition of a patient, after an apparently successful operation for acute obstruction, suddenly changes, and he dies rapidly without exhibiting any obvious cause which we feel we can put a finger on. The whole suddenness of the change and the rapidity of the passage of subsequent events forces the conclusion that some vital reaction was at this stage suddenly interfered with.

Since all observers have secured the same results in this operation the actual facts cannot be controverted. The conclusion which Whipple drew from them has in no wise helped us to abate the ravages of death in this condition. The only reason for this must be that though the facts were correct the conclusion drawn was wrong and the cause of death was not as he thought.

Let us carefully consider what exactly it was that Whipple did (Fig. 1). He put a large portion of the duodenum out of action, converting it into obstructed intestine. But he did much more; he obstructed the remaining part of the duodenum above his first ligature together with some portion of the stomach. Whipple claimed that the loop poison was the cause of death. It was at once apparent that it was possible to keep the loop intact and yet to eliminate the further upset of the alimentary canal which I have indicated. By performing a lateral anastomosis immediately above and below the two ligatures the loop is left exactly as before, whilst the continuity of the rest of the intestinal track is secured. (Fig. 3.) One dog, which had had this operation performed, was very much alive and able to take a keen interest in what went on around him ten days after this obstruction of the duodenal loop had been brought about. All the other dogs treated after the manner of Whipple have died in under three days, but on the fifth day after his operation this dog was busy worrying a dead mouse which he had killed in his cage during the night. Although this animal did not succumb to the loop formation as did the other animals, there were very marked signs that all was not quite well with him. There was great loss of flesh, although after the first 48 hours there was no difficulty in getting him to take a certain amount of milk and starchy foods. He exhibited a curious spasticity of the limbs, especially of the hind legs, and furthermore he could not keep still above a few seconds. This purposeless choreic-like movement is reminiscent of the restless tossing and pulling at the bedclothes which is often such a marked feature of the terminal stages of human cases of ileus. There were no symptoms of the acute intoxication which the other dogs had exhibited, and this animal never vomited. On the tenth day, just after this photograph had been taken, I killed

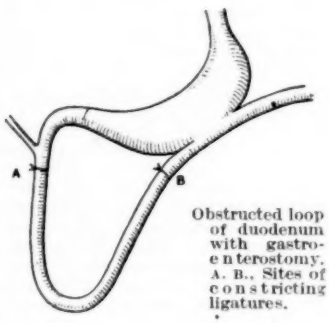
the animal and immediately did a post-mortem examination. The peritoneal cavity was dry and clean. The site of the operative procedures was still clothed with the omentum which had been laid round it at the time of operation. The lateral anastomosis was functioning perfectly and bile-stained intestinal contents could be seen above and below the opening. The ligatures still completely blocked the lumen of the gut at both ends of the obstructed loop. The interior of the isolated segment of the duodenum was empty of any food content and no trace of bile staining could be seen. This dog was not killed by the presence of the duodenal loop.

A possible argument against this result could be brought on the grounds that the ligatures might have loosened sufficiently to allow fluid to enter or leave the loop even though only in minute quantities. To make certain on this point, in the next dog I completely divided the intestine above and below the two ligatures and invaginated all four ends. By this means the loop was entirely cut off from the rest of the gut whilst the blood and nerve supply remained intact. The lateral anastomosis was completed as before (Fig. 4). An operation was performed on this animal on March 13th. It suffered no acute symptoms, neither did it vomit. It remained well until the afternoon of March 17th—that is, exactly four days after the formation of the loop. In the evening a sudden change came over the dog and it was dead before morning. A post-mortem examination revealed a perforation in the wall of the loop with general peritonitis. It had, however, survived for four days during which time it did not vomit and it exhibited no symptoms of an acute intoxication such as the dogs did after Whipple's operation. It is clear, I think, that this dog did not die as did the dogs in his series. This was killed by an accident which does not always happen. This question of perforation of the loop is interesting. It is something far more subtle than a mere rupture of the intestinal wall due to distension with fluid. To the naked eye it is the most perfect replica imaginable of a perforation of an acute duodenal ulcer, whether viewed from the inside or from without. Another feature which is also at present unexplained is the varying amount of fluid which accumulates in the isolated loop. In one dog the loop will be tense with a watery blood-stained content, whilst in another animal the loop is collapsed and has only a thick paste-like content. The contraction of the loop in this case is not associated with any leakage from a perforation or rupture. It is an absence of active secretion for some reason. These experiments do show, I think, that it was not the loop which killed Whipple's dogs, though there is evidence that it can seriously upset their normal health. It is quite clear at any rate that an isolated loop of duodenum is not incompatible with life over a much longer period of time than his dogs lasted.

There is another series of experiments done by Eisberg,[8] which illustrates the same point though the actual operation was different (Fig. 5). If a simple ligature is placed round the intestine just below the entrance of the bile-duct, the animal dies rapidly, in 36 hours or so, with symptoms of fulminating intoxication. If, however, the obstruction is placed above this entrance, just below the pylorus, the symptom complex is changed and the animal lives for a considerably longer period of time. This difference is markedly exemplified in our clinical experience with man. The case of simple pyloric obstruction lasts for a lengthy period, whilst the occurrence of a vicious circle after a gastro-enterostomy rapidly ends the scene with a picture which is indistinguishable from that of acute ileus. One essential difference in the physiological results of the positions of these obstructions is that in the one the bile has a free and uninterrupted passage along the length of the intestine, whilst in the other it is held up at its origin and is in part lost from the body by vomiting. The same difference exists between the method in which Whipple performed his loop operation and the way in which I did mine. I now assumed for the purpose of experiment that it was essential for life that bile should be in contact with the intestinal mucosa; and the idea occurred to me that it might be possible to get this condition restored in cases of acute ileus by placing bile in contact with the mucous membrane of the rectum.

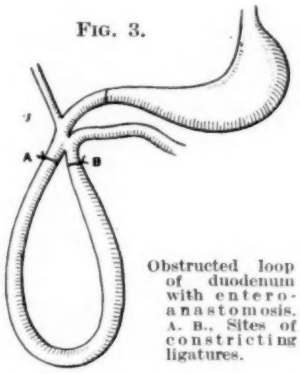
The following question will at once present itself if I have made the argument clear: "How is putting the bile into the rectum going to allow bile to have access to the duodenal mucosa: insistence has been laid on the importance of the function of this portion of the alimentary canal all through, and surely then if bile must be anywhere it is in the duodenum where its presence is vital?" It may be well to state that much remains to be done before the scientific basis of the relief produced in paralytic ileus by the injection of bile can be established. In the present lecture I do not propose to deal with the experimental

FIG. 1.



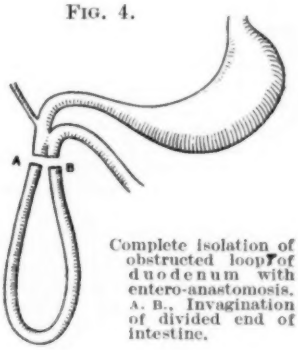
Obstructed loop of duodenum with gastro-enterostomy. A. B., Sites of constricting ligatures.

FIG. 3.



Obstructed loop of duodenum with entero-anastomosis. A. B., Sites of constricting ligatures.

FIG. 4.

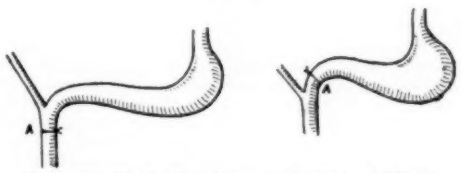


Complete isolation of obstructed loop of duodenum with entero-anastomosis. A. B., Invagination of divided end of intestine.

FIG. 2.

Method of procuring the obstruction.

FIG. 5.



Diagrams illustrating the experiments of Eisberg.

work I have performed to obtain an insight into the mode of action of this therapeutic measure.

I shall briefly describe some of the clinical results of this method of treatment; pointing out the difficulties met with, as well as the successes attained.

METHODS AND TECHNIQUE.

The first time that an opportunity presented itself for trying out my hypothesis, as it then was, I was suddenly confronted with an acute ileus in the case of appendicectomy which had been left in my charge. It happened at a moment when there was no bile available save that which was contained in the patient's own vomit. Thinking that the acid content of the vomits might act as a severe irritant to the rectal mucous membrane I diluted the vomits with normal saline. As this stopped the vomiting effectually I continued the practice of dilution even when pure human bile was to be used. Another reason which influenced me in making this decision, was the thought that the increased bulk of the fluid would allow more of the bile to come in contact with the mucosa of the rectum. If possible, freshly secreted human bile from a cholecystostomy was used, but I have found that the bile can be kept in an ice-chest, for at any rate a week, without losing any of its potency.

The technique used in this series of cases has been to commence with 2 oz. of human bile in 4 oz. of saline. This mixture is run into the rectum with a tube and funnel in exactly the same way as an ordinary saline is given. The procedure is repeated every four hours. There is no discomfort caused by using human bile and the patient does not experience any difficulty in retaining the injection. If however, ox-bile is used, the desired effects are not obtained so easily, nor so quickly, and acute pain of a colicky nature appears; pain so severe as to call for the use of morphia. Also at the end of half an hour or thereabouts the patients often declare that they are forced to return it against all will-power and effort to the contrary. If human bile is now used for such a patient there is no further trouble, the saline is retained with ease and the desired results accrue more rapidly. The same pain was caused by the use of vomited bile in the only case in which this form was employed.

It will at once occur to many that the use of ox-bile as an enema is an ancient practice which has been in large measure discarded. I must say that although the bile is given per rectum it is not as an enema that it works. The results of this treatment which I am about to put before you will follow its use in a case of unrelieved organic obstruction without any passage of either fæces or flatus. If the full remission of the toxæmia and its accompanying symptoms is not obtained, the amount of the bile is increased by increments of half an ounce at a time, the dilution remains in the same proportion. I have not had to go beyond 3 oz. of bile at a single injection before obtaining the results aimed at.

The question of how long this treatment is to be persisted in, is not an easy one to answer in a few words. The work is only in its early stages and much has yet to be learned. It is, however, safe to state that when definite improvement is seen and the bowels have been opened it is safe to ease off the amount of bile. If the vomiting returns it is possible to get the patient under control at once again by increasing the amount of bile to that which previously was efficacious. The histories of the cases will show the difficulties met with in this form of treatment. One of the greatest of these arose from the fact that it is possible to keep a patient fit for days even though there is an unrelieved organic obstruction inside his abdomen. Obviously this result is simply one of cloaking a condition demanding surgical interference. In fact, my experience goes to show that if the vomiting returns on the cessation of the bile, and at the same time the bowels are not open in a satisfactory manner, then the abdomen must be reopened, as it is almost certain that there is a mechanical obstruction present.

In the first cases morphia was used in conjunction with the injection of bile. Those who are acquainted with the writings of Hugh Owen Thomas on the place of this drug in acute obstruction will very naturally suggest that the whole effect is due to the morphia. Repeated injections of morphia were used in only one of these cases in which human bile was the form used. It was afterwards found unnecessary except for special occasions. Opium can, and I think should, be used with discretion, but only after the patient has been got under control with the bile. There is a very distinct danger in using morphia, in a case with an advanced degree of toxæmia, before this has been accomplished. Another possible explanation which I can see may be put forward is that the result is due to the fluid absorbed from the rectal injection. Only 4 oz. of saline have been used in each injection, and if saline in itself is a specific for the toxæmia of acute ileus, this fact would have been recognised long ago. The diet of these people is most important. It is absolutely essential that nothing but water and orange juice should be given until the ileus is overcome and the bowels are working naturally. Glucose in this form is useful and I believe expedient. This is, I believe, the only addition to water allowable. In my experience anything in the nature of meat extract is promptly returned.

The present series is composed of 13 cases of acute ileus which had all reached the stage at which the vomited material had a distinct stercoral odour and appearance. It was quite obvious that really startling evidence had to be produced, and therefore mere distension and mild vomiting would be no kind of proof of the value of a specific treatment which is said to result in the disappearance of the vomiting and other phenomena of acute obstruction. Also I did not feel justified in testing this method of treatment except in extreme cases for which nothing else could be done.

CLINICAL HISTORIES.

Case Treated with Vomited Bile.

CASE 1.—The patient, a man of some 30 odd years, had a gangrenous appendix removed some days previously, with drainage to the pelvis. His condition gave rise to a good deal of anxiety owing to distension and flatulence. Without any further warning he started to vomit profuse amounts of foul-smelling bile-stained material, and with this there developed a marked hiccough. There was no other form of bile available, so the vomited matter was diluted with saline and put back into the man per rectum. The vomiting stopped forthwith, whilst the spasm of the diaphragm was lessened and had disappeared within 18 hours. The treatment was continued until all the vomitus was used. The injections caused him to suffer intense colicky pain, which had to be controlled with morphia. Within 24 hours the stercoral vomiting had restarted and was again abolished by the same methods. There was no further recurrence, and after a stormy convalescence he recovered without any more ileus.

Case Treated with Human Bile.

CASE 2.—This was a private case in which I had removed a gangrenous but non-perforated appendix within 30 hours of onset. There was a small amount of slightly turbid fluid in the pelvis, and the abdomen was closed without drainage. For the next three days he gave rise to no anxiety, and a fair result was obtained each day with a simple enema. There was a slight amount of flatulent spasm, which would be expected in such a case. On the evening of the third day he was a little distended and vomited once, but only some water which he had taken. An enema resulted in the passage of flatus followed by a small fæcal result. I was sent for in the early hours of the morning and found that he had quite suddenly vomited a large bowlful of stercoral material. He was propped up in the Fowler position hiccoughing persistently. His abdomen was tightly distended, the facial expression drawn and anxious; the pulse was thin and running. Operative measures were quite out of the question; indeed, he looked very near to death. I made the diagnosis of a fulmination of a quiet paralytic ileus. Subsequent events proved me wrong, but an immediate operation would have resulted in death. I put him on four-hourly salines of human bile with ¼ gr. of morphia hypodermically at the same intervals. In view of the acute pain caused by the injection of vomited bile in the previous case, I expected at this stage of my investigations that the same pain would

follow the use of human bile. By the evening he was comfortable though still very distended. He had not vomited since the first bile injection had been given, and the hiccough ceased to worry him within three hours. This course was continued for seven days, during which time he had taken nothing save water with a little orange juice. On the evening of the seventh day I stopped the bile, still continuing the morphia four-hourly. The next morning he again vomited up copious amounts of definitely fæculent material. The bile was restarted and the vomiting again stopped forthwith.

Two days later I stopped the morphia continuing the bile. He still remained comfortable, as the distension had in large measure disappeared and his pulse was 70. His tongue was moist and perfectly clean, though his bowels had not moved for ten days. On the tenth day I ordered two enemas, and as there was no result of any kind I realised that it was not a case of paralytic obstruction. I went in to break the news to him and found him with a soft and only slightly distended abdomen, a pulse of 70, a perfectly clean moist tongue. He was smoking a cigarette and reading a paper. I had great difficulty in persuading the patient to allow me to open his abdomen, as he insisted that he felt perfectly fit and well. Moreover, he looked it. I gave him 3 oz. of bile per rectum half an hour before operation. He gave no trouble to the anæsthetist and did not vomit after the operation. I reopened his abdomen through a small pararectal incision, and found that there was an absolute obstruction by an omental band about six inches from the ileo-cæcal valve. The bile was continued for two days; the bowels were well moved the morning after this operation, and he made an uninterrupted recovery.

This case taught me that morphia was not needed for pain when human bile was being used. It will naturally be asked, but why sit on a case all that time? When bile is being used in a case of organic obstruction such as this the residue of the bile collects in the large bowel and is voided at intervals, especially after an enema. This material looks and smells just like a fluid stool, and in this case it deceived me into thinking that we were gradually overcoming the paralysis since the distension was less. I even had an enema given, the amount injected being measured before and after its return. The volume was always increased after being returned, and it was some time before I hit upon the true explanation. Also I had not yet realised that the abdominal distension went as a result of this treatment without any passage of flatus. It can now be realised that the first steps in the clinical application of this work were beset with many difficulties which did not always allow of a successful ending, as will be seen later.

Since human bile is often difficult to obtain, I decided to try the effect of ox bile. The dose was half the quantity of that employed when human material was used.

Case Treated with Ox Bile.

CASE 3.—A girl, aged 25, had a gangrenous appendix removed on Dec. 19th; the abdomen was closed. Her abdomen was a little distended and she vomited slight amounts on several occasions, but there was no sign of any stercoral odour. On the 24th she was very distended, the outline of the stomach itself being plainly visible below the level of the umbilicus, and the material brought up was of distinctly fæcal odour. As no human bile was procurable she was given 1 oz. of fresh ox bile four-hourly in saline. The vomiting ceased gradually, the abdomen softened, and on the 28th the bile was stopped. Within 12 hours both the distension and the vomiting were worse than ever. The treatment, still with ox bile, was restarted and continued until Jan. 4th, when the distension had almost disappeared, and as the bowels were acting daily the bile was stopped. The subsequent history was one of uninterrupted progress.

It was obvious from this case that although the ox bile did work it was far less efficient than human bile, whilst it caused acute pain which had to be relieved with morphia. It seems that there is some harmful substance in this form of bile which causes these symptoms. The results were not all of this happy nature.

Case in which Ox Bile did not Work.

CASE 4.—A woman, aged 60, had a cæcostomy performed for acute obstruction due to a growth of the hepatic flexure. She had fæculent vomit on admission and this continued after operation. This ceased with human bile, but after a day this ran short and recourse had to be taken to ox bile. The vomiting returned and was again allayed by human material. I saw her on the fourth morning looking very fit and the vomiting had almost ceased. She was suddenly seized with acute abdominal pain and vomited persistently in spite of all until her death three hours later. Post-mortem examination showed that the cæcum had slipped back and filled the peritoneal cavity with fæces.

Case in which the Bile Failed after Primary Success.

CASE 5.—A man, aged 35, had an acute gangrenous appendix with an ileus duplex at the time of operation. Drainage to the pelvis was employed, and at the same time an ileo-transverse colostomy was performed. This was on Jan. 4th. On the evening of the 6th he suddenly collapsed and began to regurgitate rather than vomit fæculent matter. He had a muttering delirium and was plucking at the bed clothes. Human bile was given and the vomiting had almost ceased next morning, whilst the man's condition was greatly improved and he said he felt better. The improvement continued day by day, but on the 11th the vomiting recommenced and persisted in spite of all efforts. I did not see him myself after the 10th, and those who did see him thought that his death was due to a progressive general peritonitis. In the light of experience gained from subsequent cases I cannot rid myself of the suspicion that a recurrence of some obstruction was really the cause of his death.

In all, 13 cases have been treated with this method. They were cases of an extreme degree of ileus, all with stercoral vomiting. Of this number four have died—one as a result of leakage from a cæcostomy into the peritoneum, another from a cause which was never settled as a post-mortem was refused. The remaining two fatalities were due to an unfortunate happening which was the result of ignorance of the potency of the treatment and which I think can be avoided in future work. I will now describe these two cases.

A woman of 65 was admitted to hospital with a strangulated femoral hernia on Feb. 2nd. The hernia was operated on, and the gut, which quickly regained its colour, was returned. The radical cure was completed in the usual manner. Two days later she commenced to vomit stercoral matter and this was controlled with human bile. Three days later the vomiting restarted and continued at intervals. All the time the patient looked remarkably fit. On two occasions I thought of reopening her abdomen, but she was so frail that it was not done. She died on Feb. 18th. The post-mortem revealed a strangulated loop of intestine in the other half of a bilocular hernial sac which had been reduced en masse at the time of operation. It is easy to be wise after an event, but the fact remains that with the administration of human bile this woman of 65 had lived for 16 days with complete obstruction due to a strangulated loop of small intestine within her abdomen.

The second case is of a similar nature.

A woman, aged 30, was admitted with abdominal pain and vomiting. The diagnosis was acute obstruction. At operation a band was found and divided. Three days later the vomit was fæcal and the treatment by human bile was started. On the fifth day, since she had not vomited again, the bile was stopped. Her bowels were well opened as a result of an enema. Two days later the vomiting began again, and this time it was only stopped when morphia was given in addition to the bile. This alternation went on until 15 days after her operation, when there was a copious fluid stool. I now ventured to give her a small dose of mag. sulph. The fæcal vomit restarted and I said that there was some organic cause which had been missed at the first operation. She was given a bile enema, and on opening her abdomen an intussusception due to a polyp was found in the lower part of the ileum. It is evident from her history over these two weeks that this had only been present intermittently. The polyp was removed and a lateral anastomosis performed above and below, as the suturing after removal of the polyp had constricted the lumen of the bowel to a dangerous degree. She rallied from this procedure, but there was only ox bile available, and though I have no actual proof I feel that the substance in ox bile which causes the pain can not only not improve the condition, but can even be deleterious if given to a patient who is really badly shocked. (This danger is never to be feared when human bile is employed.) This case died on the second day after the operation.

These two histories are sad reading, but in a new form of treatment success cannot always be obtained. There are bound to be pitfalls and experience has to be bought at a price. The only consolation lies in the fact that they were cases in extremis when this form of treatment was tried, and that nothing else

could have done them any good with a greater hope of success. Their lives were undoubtedly prolonged, and with my present knowledge I do not think that failure would have resulted, since in both cases the operation would have been done many days earlier.

SUMMARY OF THE EFFECTS OF HUMAN BILE IN ACUTE ILEUS.

In most cases after the first rectal injection of human bile the vomiting stops forthwith, and even if this is not the result at once it is very much diminished, and an increase in the bile given will secure the desired result. The violent hiccough which so often accompanies ileus, especially in cases of primary small intestine obstruction, will lessen and disappear in a few hours. The drawn, anxious expression fades rapidly, and at any rate it is true to say that if you do not see the patient for some hours the change is so pronounced that it cannot be missed. The dry furred tongue will become moist and clean, and will remain so in spite of an unrelieved organic obstruction. In addition, the restlessness is abolished. The patient will volunteer the information that he feels quite a different person from what he did a few hours before, and his whole manner and bearing confirm this statement as being true. Perhaps the most striking manifestation is the softening of the abdomen and the disappearance of the distension, without any passage of flatus per rectum. One is forced to the conclusion that is has gone whence it came and has been reabsorbed.

It was thought probable on the basis of experiments on animals that the symptoms which develop in intestinal obstruction were due to some interference with physiological function, such as the absence of bile in the small intestine. For this reason bile was injected in human cases of acute ileus.

The experimental work for this lecture was done in the Pharmacological Laboratory of Sheffield University. I wish to tender my sincere thanks to Prof. Edward Mellanby for his kind help and criticism. The expenses were defrayed by a grant from the Royal Society.

REFERENCES.

1. Van Beuren, F. T., junr.: Annals of Surgery, 1922, lxxv., 426.
2. Braeze, Louis: Johns Hopkins Bulletins, 1926, xxxix., 121.
3. Ellis, J. W.: Annals of Surgery, 1922, lxxv., 429.
4. Whipple, Stone, and Bernheim: Jour. Exper. Med., 1913, xvii., 286.
5. Ibid., p. 307.
6. Ibid., 1914, xix., 144.
7. Von Baracz, R.: Arch. f. Klin. Chir., 1899, lviii., 120.
8. Eisberg: Annals of Surgery, 1921, lxxiv., 584.

STUDIES IN THE ACID-BASE EQUILIBRIUM IN PSYCHOSES.*

BY ISABELLA ROBERTSON, M.D. LOND.

THE GASTRIC FUNCTIONS.

THIS paper records the results of a series of observations on the gastric functions in certain types of mental disorder, and forms part of a research in the acid-base equilibrium in psychoses. These observations were carried out: (1) by an analysis of the gastric contents; (2) by an investigation of the variations in the alveolar CO_2 pressure following a standard meal.

Four groups of subjects were investigated. Only those who after a complete physical examination showed no gross physical abnormality were selected. The first group consisted of ten normal healthy men and women, the second of ten melancholics, the third of ten schizophrenics, and the fourth of ten cases of anxiety neurosis. The cases of mental disorder were all uncertified and of comparatively short duration. Each case selected, however, presented a typical clinical picture, and was subjected to fairly prolonged observation before any investigation was undertaken. Considerable difficulty was experienced in persuading the psychotic patients to swallow the fractional tube and in teaching them to expire normally through the mouthpiece of the Haldane gas analysis apparatus. For these reasons it was decided to confine the investigation to a comparatively small number of cases, and to investigate these cases thoroughly, rather than to examine a large number of cases once or even twice. The investigations were carried out under similar experimental conditions, and each patient was examined on several different days.

The first part of the investigation consisted of a series of observations on the gastric test-meal. Using the fractional tube for extraction and the gruel test-meal, a complete analysis of the gastric test-meal was made every 20 minutes. The free HCl and the total acidity were estimated, using dimethyl and phenolphthalein as indicators, and the results recorded graphically, the acid value being represented by the number of c.cm. of N/10 alkali which would be required to neutralise 100 c.cm. contents. The total chlorides were estimated by the Volhard method. One or two of the patients who eventually did swallow the fractional tube were so agitated on each occasion that the results obtained were valueless. In the majority of the patients who were finally selected a fairly considerable emotional disturbance occurred during the first one or two examinations, and the results were found to vary somewhat in consequence. This emotional disturbance was not noted during the later examinations, and the results obtained were of a characteristic type. That an emotional stimulus—e.g., fear—inhibits gastric secretion has been shown by T. I. Bennett and J. F. Venables (1920). J. R. Bell and W. McAdam (1924) have also noted that the lowest acid curve obtained after a test-meal is that obtained on the first examination, and that subsequently the free HCl is of characteristic type.

The second part of this investigation consisted of a series of observations on the variations in the alveolar CO_2 pressure following a standard meal. Changes in the alveolar CO_2 pressure following a standard meal in normal subjects have been demonstrated by E. C. Dodds (1921). He finds that during the first 30–45 minutes the alveolar CO_2 pressure rises 2–6 mm. Hg, subsequently falling to nearly the same extent below the original level—the lowest point being reached after one and a half to two hours—and regaining the original level three hours after a meal. In a later paper Bennett and Dodds (1921) have noted the correlation which exists between the curves of gastric acidity and the alveolar CO_2 pressure following a meal in normal subjects of varying types as regards their gastric secretion.

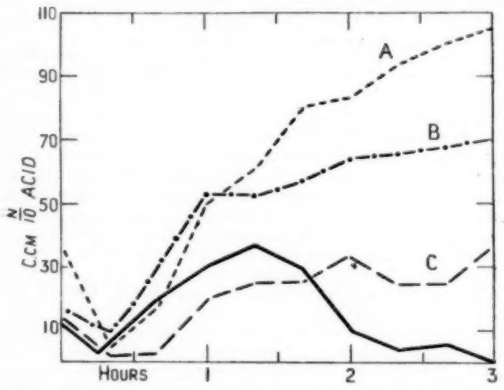
The analysis of the CO_2 percentage in the alveolar air was carried out by the Haldane Priestly method, using the Haldane gas analysis apparatus. A special burette, the bulb of which was capable of holding 18 c.cm. and the graduated stem 2 c.cm., was used.

Gastric Test-meal.—The variations in the results obtained from the same individual on different dates were slight, and even when the variation was maximum the general conformation of the curve was maintained. Generally, the curve obtained on the first day was lower than on any subsequent day. The average free acidity of the fasting juice was 12 c.cm. N/10 acid and the amount varied from 5–50 c.cm. The percentage of free acidity after ingestion of the gruel meal showed an initial fall at 20 minutes—then a steady increase, reaching a maximum—a free acidity of 30–50 c.cm. N/10 acid—about one and a half hours followed by a gradual fall. C. Bolton and G. W. Goodhart state (1922) that the curve of acidity due

* This communication forms part of a report to the Medical Research Council.

to free HCl assumes in 90 per cent. the form of a single peak, and that the fall in the curve may result from neutralisation or dilution, or both. The curves of free and total acidity showed a difference of 15 c.cm. N/10 acid, and ran closely parallel. Generally, the stomach emptied in two hours. These results are in agreement with those of Bennett (1926), J. Ryle (1926), and H. McLean (1925). (Fig. 1.)

FIG. 1.



Curves of gastric acidity. The continuous line represents free acidity in normal subject. A = Agitated melancholic. B = Schizophrenic. C = Early schizophrenic showing atypical curve.

Alveolar CO_2 Pressure.—The variations in the alveolar CO_2 pressure following both a standard meal and a gruel test-meal were next investigated. The alveolar CO_2 pressure was expressed as mm. Hg, and the results recorded graphically. It was noted that the same type of curve was obtained on different days from the same subject, though the actual figures might vary from day to day. The results were in agreement with those of Dodds—a rise in the alveolar pressure following a meal, generally maximum at 45 minutes, and a subsequent fall, maximum at one and a half to two hours—and regaining the initial level at two and a half to three hours.

A comparison of these curves with the gastric curves of the same subjects shows that a definite correlation exists between the gastric acidity and the variation in the alveolar CO_2 pressure, the increase in CO_2 pressure varying directly with the amount of gastric HCl secreted. It has been shown by Dodds and Bennett (1921) in a series of observations that the subsequent fall in alveolar CO_2 pressure which occurs is due to secretion of alkali into the duodenum, and that this secretion is chiefly pancreatic in origin (W. Boldyreff, 1914–15). (Fig. 2.)

Results in Melancholia, Schizophrenic, and Anxiety Groups.

Melancholia Group.—These cases were all men of early middle age, free from gross organic disease. All were typical cases of melancholia occurring in men of a good type who had made a good adaptation until the time of breakdown and had been free from nervous or mental disorder. In slightly over 50 per cent. of the cases a history of abdominal pain, varying from definite epigastric pain to vague abdominal discomfort, was elicited.

The number of cases examined was too small to allow of any generalisation, but it did appear that there was a definite abnormality in the gastric secretion of melancholics. Only one case showed a definitely normal type of secretion. The results obtained from these ten cases were: normal, one; hyposecretory, six; hypersecretory, two; and atypical, one.

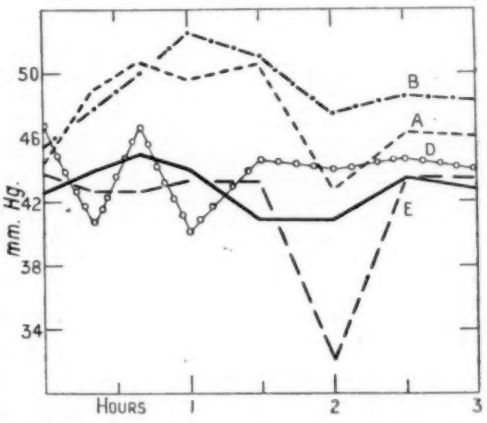
Schizophrenic Group.—In the adolescent psychoses diagnosis is admittedly difficult in the early stages, and since these cases were seen at a very early stage of development each member of the group was submitted to fairly prolonged observation before investigations were made. Subsequent histories have proved the diagnosis to be justified. All were of the hebephrenic type and in none had dementia supervened at the time of investigation.

In this group also the majority of the patients showed both abnormal gastric curves and correspondingly abnormal alveolar CO_2 pressure curves. The results of these ten cases were: normal, two; atypical, two; and hypersecretory, six.

Anxiety Group.—This group consisted of typical cases of anxiety neurosis. These were all young men, free from organic disease. In none of the cases could the onset be said to date from factors in the present life of a previously sound normal individual. Four of these cases, who were either quite unable to swallow the tube or, having swallowed it, to retain it for more than five or ten minutes, gave a constant type of alveolar CO_2 pressure curve. Three showed a marked and unduly sustained rise throughout, indicating hypersecretion or deficient pancreatic secretion, while the fourth showed no rise other than a slight and transient rise above the initial level at one and a quarter hours.

In this group also the majority of the patients examined show an abnormal type of gastric secretion, this abnormality being, as in the schizophrenic group,

FIG. 2.



Alveolar CO_2 pressure curves. The continuous line represents normal curve. A = Agitated melancholic. B = Schizophrenic. D, E = Melancholics of depressed anergic type.

a hypersecretion. The results of these ten cases were: normal, three; hyposecretory, one; hypersecretory, five; and atypical, one.

Gruel and Casein Test-meals.

Before discussing these findings it was considered advisable to compare the gastric secretion following the ordinary gruel test-meal with the gastric secretion following a pure protein meal of casein. A comparison of the gastric secretion following the gruel meal and the casein meal shows that casein produces a more intense gastric secretion than does gruel, this difference being due to the dynamic effect of the protein molecule. The general conformation of the two curves, however, indicates that the type of gastric secretion is unaltered, the difference being rather one of degree.

Discussion of Results.

The results obtained from the three groups of psychotic patients, based on an analysis of over

150 fractional test-meals and over 200 alveolar CO_2 pressure curves, were as follows :—

—	Normal.	Hypo-secretory.	Hyper-secretory.	Atypical.
Melancholia ..	1	6	2	1
Schizophrenic ..	2	—	6	2
Anxiety neurotic.	3	1	5	1

A comparison made between the gastric secretory curves following a pure protein meal and that following the conventional gruel test-meal showed that in both types of meal this abnormality persisted and hence could not be ascribed to abnormal response to types of food. The alveolar air curves corresponded in a normal fashion with the gastric acidity curves. A comparison of the gastric and alveolar CO_2 pressure curves of the same patient showed that a definite correlation, such as exists in normal subjects, does exist between the two types of curves. In classifying a patient, therefore, as hyposecretory or hypersecretory it was possible to confirm the gastric analysis by means of the alveolar CO_2 pressure in the majority of the patients, the exceptions being those patients from whom it was impossible, owing to lack of coöperation, to obtain reliable specimens both of gastric contents and of alveolar CO_2.

In the group of normal men and women who acted as controls none showed either hypochlorhydria or hyperchlorhydria. It has been shown that hypochlorhydria exists in 4 per cent. of apparently normal people and similarly that hypersecretion is found in 4 per cent. of apparently normal healthy subjects (M. E. Rehfuss and P. B. Hawk, 1920).

The validity of the results obtained by the fractional method of gastric analysis has been criticised by N. Kopeloff (1922), who states that repeated analysis in the same subject within a short time, under similar conditions, yields different curves. The majority of investigators who have used this method extensively, however, agree that the same type of curve is obtained from the same subject on different days provided that the experimental conditions are similar and that the tube is maintained at the same level in the stomach. J. Bostock (1926), recording the results of 100 test-meals in a series of cases representing the graver forms of mental disorder, classifies as normal 11 per cent., as hyposecretory 53 per cent., and as hypersecretory 36 per cent. of his cases. Including in this series his 36 hypothyroid cases the percentages are : normal 11·5 per cent., hyposecretory 55 per cent., and hypersecretory 33·5 per cent. The hypothyroid curves tended to be flat, and he suggests that emptying of the stomach does not take place until later than normal. In 47 cases of depression which he investigated 26 shows either achlorhydria or hypochlorhydria and 15 showed hyperchlorhydria. There is, therefore, almost complete agreement between the results Bostock obtained from his cases of depression and the melancholia patients of the present series. Of his nine cases of dementia præcox, however, six were of hyposecretory type and only one of a hypersecretory type, while of the ten schizophrenia cases investigated in this series six were of a hypersecretory type.

Consideration of the melancholia group shows that those patients who were hyposecretory were depressed, anergic, and obviously suffering from some degree of intestinal stasis and that those patients who were agitated showed definite hypersecretion. One of the patients in this group who alternated between anergic and agitated phases of depression within a few days showed in both phases alike the same type of steadily rising gastric curve, with a free acidity of 85–100 c.cm. N/10 acid at the end of three hours. The effect of hyperacidity is to cause a retardation of the emptying of the stomach, and in this case it was noted that it was always possible to withdraw about 30–50 c.cm. of contents at the end of three hours. It was possible to examine this patient on many occasions, and the results of these examinations showed clearly in this patient that it is not the acute emotion of the moment which determines the type of gastric secretion, in which case one would find it possible to correlate the anergic phase with hyposecretion and the agitated phase with hypersecretion, but that the type of gastric secretion is determined by the general visceral tone, which in this particular patient was one of increased nervous tension. The gastric curve was, therefore, a hypersecretory curve, even on the days when the patient was anergic.

C. B. Farr and C. W. Lueders (1923), on the basis of fractional studies in 46 cases, conclude that depressing emotions appear to exert an inhibiting effect on gastric and even duodenal secretion, while mental exaltation seems to favour gastric digestion. As the result of further investigations on 191 mental cases C. B. Farr, C. W. Lueders, and E. D. Bond (1925) conclude that there is some evidence that emotion or increased nervous tension does have a very decided effect on gastric section, but that such effects are usually associated with acute emotion, not with a mere habitual feeling tone. G. W. Henry (1924) states that there is a greater degree of intestinal sluggishness in markedly depressed than in mildly depressed patients, and concludes that certain definite physiological visceral changes accompany the different types of psychoses. While it has not been possible to confirm this latter statement, it is possible to state that in those depressed patients in whom there is probably lack of intestinal tonus and in consequence intestinal sluggishness, there is gastric hyposecretion. It has been shown that gastric secretion is dependent on two mechanisms, a nervous mechanism and a chemical or local nervous mechanism, the latter acting through the production of a hormone. In these depressed anergic patients it seems probable that both mechanisms are at fault and that the vegetative nervous system may be at fault in two ways, both through failure to initiate gastric secretion and through insufficient intestinal tonus, inefficient gastric and intestinal movements, and in consequence an accumulation of the products of such digestion as does occur.

In considering those other psychotic patients, the agitated melancholics and the schizophrenic-anxiety groups, in whom there is generally gastric hypersecretion, it seems probable that in the earlier stages of the disorder there is an overactive condition of the vegetative nervous system acting on the production of gastric secretion and the augmentation of intestinal tonus.

Summary.

In this paper the gastric secretion and the correlated alveolar CO_2 tension has been studied with the following results: 1. A normal type of gastric secretion was found in only 20 per cent. of the psychotic patients. 2. Comparison of the gastric and alveolar CO_2 tension curves shows that a definite correlation does exist between the two types of curve. 3. A comparison between the gastric secretory curves following a pure protein and a gruel meal shows that this abnormality persisted and could not, therefore, be ascribed to an abnormal response to types of food. 4. There is evidence to show that depressed, anergic patients belonged to the hyposecretory group and that those patients who were agitated showed definite hypersecretion.

In conclusion, I should like to express my indebtedness to Dr. F. L. Golla for his interest and guidance of this research, to Dr. E. Mapother and his medical officers for facilities to carry out the research, to Dr. E. G. B. Calvert and Capt. S. A. Mann, B.Sc., for advice and helpful criticism, and to those members of the staff of the Maudsley Hospital who acted as controls.

ROYAL SOUTH HANTS HOSPITAL.—An extension of the nurses' home and a new operating theatre at the Royal South Hants and Southampton Hospital have been opened by Lady Montague of Beaulieu. In the course of a year or so it is hoped to have 200 beds in the hospital, but the needs of the district will not be met until 300 beds are available.

THE ASSOCIATION OF LOW BLOOD CHOLESTEROL WITH THE OCCURRENCE OF FITS IN EPILEPTICS.

BY S. H. G. ROBINSON, M.B. LOND.,
FREEDOM RESEARCH STUDENT, LONDON HOSPITAL;

W. RUSSELL BRAIN, M.D. OXF., M.R.C.P. LOND.,
FIRST ASSISTANT TO THE MEDICAL UNIT, LONDON HOSPITAL; ASSISTANT PHYSICIAN TO THE HOSPITAL FOR EPILEPSY AND PARALYSIS, MAIDA VALE;

AND

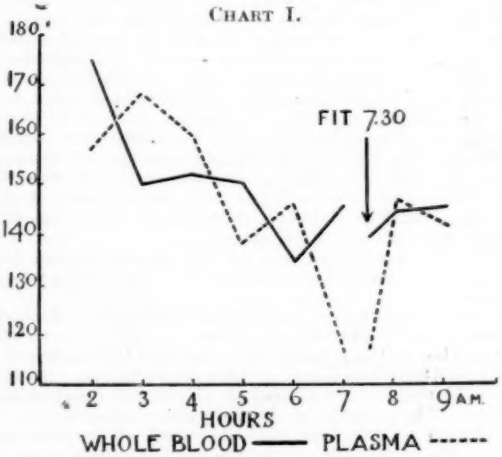
H. D. KAY, M.SC. MANCH., PH.D. CAMB.,
BEIT MEMORIAL RESEARCH FELLOW; BIOCHEMIST TO THE MEDICAL UNIT, LONDON HOSPITAL.

Biochemical Investigations of Epilepsy.

DURING the past few years attempts have been made to discover whether there is any chemical abnormality in the blood of epileptics which might be correlated with the onset of seizures. Thus, Bigwood (1924) has put forward the view that an epileptic seizure is preceded by an alkalosis, which, by leading to a diminution in the calcium of the blood, causes the convulsion. Marrack and Thacker (*a*) (1926) have investigated the hydrogen-ion concentration of the blood of 34 epileptics and have found it to be within normal range, even in patients having frequent fits. They conclude that "a high plasma pH cannot be considered to play an essential part in producing fits." Further, Marrack and Thacker (*b*) (1926) have adduced evidence to show that even if chronic slight alkalosis did occur in epileptics, it could not lead to a reduction in calcium-ion concentration in the plasma. They are of opinion, therefore, that "epilepsy is not caused by a reduction in the calcium-ion concentration in body fluids."

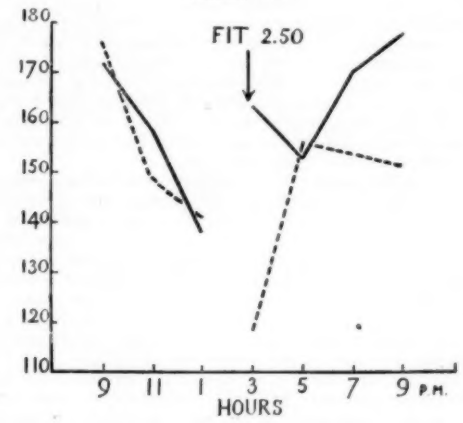
Charts I., II., and III. show the Amount of Cholesterol (mg. per 100 c.cm.) in Whole Blood and Plasma Before and After an Epileptic Fit.

CHART I.



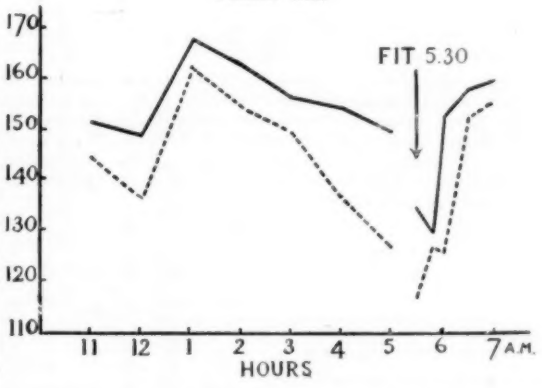
Bisgaard, Norvig, and Larsen (1920, 1924, 1925) believe that there is a great increase in the blood ammonia of epileptics before the onset of a seizure. This they attribute to a disturbance of the ammonia excretion in these patients. Bisgaard has gone further and suggested that the "ammonia dysregulation is due to parathyroid insufficiency." Luck, Thacker, and Marrack (1925) find that a high blood ammonia may occur at times in epileptics, but not necessarily before fits. Blood ammonia is high in starvation, for example, a condition in which epileptic patients are more than usually free from fits. High blood ammonia they do not consider to be the cause of fits. They also find no evidence of abnormal ammonia excretion in epileptics (1926). Wuth (1923) criticises theories regarding the ætiology of epilepsy based on changes which occur in the blood constituents during or after a fit. He states that non-protein nitrogen, uric acid, creatinine, and serum protein may show slight increases during and shortly after convulsions, but the changes are not always uniform, and are certainly not specific for a convulsive seizure. These changes he believes are to be regarded as secondary phenomena due to the physical exertion of the convulsions.

CHART II.



Negative findings of other observers may be included here. Lennox (1923) has examined the non-protein nitrogen, urea nitrogen, amino nitrogen, uric acid, creatinine, sugar, and alkali reserve in the blood of epileptics, and found them normal. Hamilton (1925) has examined and found normal the concentration of chloride, bicarbonate, inorganic phosphorus, total fixed base, and calcium in both serum and cerebro-spinal fluid of epileptics. Hitherto, then, no metabolic abnormality in epileptics has been conclusively proved or generally accepted.

CHART III.



Blood Cholesterol in Epilepsy.

Apart from the use of sedatives, it has been found by different workers that epileptic seizures may in a number of cases be diminished in frequency (*a*) by starvation; (*b*) by a high fat diet; (*c*) during pregnancy. It has also been observed, and, indeed, been accepted as of value in diagnosis that, in epileptic women, fits are often increased in number and, in fact, may occur exclusively at or about the menstrual period.

In searching for some common factor we recalled that in the circumstances (*a*), (*b*), and (*c*) above when the fits are diminished in frequency, the blood cholesterol has been stated to be above normal (see Campbell's review, 1925) whilst at or about the menstrual period when fits are more frequent, the blood cholesterol is markedly decreased (Okey, 1925). Moreover, cholesterol and its esters form a quantitatively large part of the dry matter of nerve tissue and are present especially in the myelin sheaths. According to Hammarsten, cholesterol (free or combined) constitutes one-eighth by weight of the solids of the brain. These considerations led us to examine the level of blood cholesterol in epileptics at various times in relation to the fits, comparing it with figures for the level of this constituent in the blood of normals in as nearly as possible comparable circumstances (diet, social class, time of day, age, sex).

It was clear that in order to carry out the necessarily large number of cholesterol determinations, a method must be used which was as simple and expeditious as possible, and which required only small quantities of blood or plasma. The method finally adopted was Sackett's (1925) modification of Bloor's method. Determinations were carried out in each case on oxalated whole blood and plasma taken from a vein in the arm, the mean of duplicates being taken in most instances.

While we are aware of the shortcomings of this colorimetric method, and while we do not claim that our figures represent with any absolute accuracy the amount of cholesterol ("free" cholesterol + "ester" cholesterol) in the blood or plasma, we do claim that the results obtained for epileptic and for normal blood under similar conditions, are comparable.

The earlier results are summarised in Table I.

TABLE I.

(Cholesterol in mg. per 100 c.cm.)

—	Males.			Females.		
	No.	Whole blood.	Plasma.	No.	Whole blood.	Plasma.
Normals ..	39			32		
Mean ..		*172*	*163*		*175*	*172*
Maximum ..		222	212		243	217
Minimum ..		157	142		152	133
Epileptics ..	65			59		
Mean ..		*157*	*147*		*161*	*149*
Maximum ..		198	185		219	203
Minimum ..		100	85		100	95

Although derived from a fairly large number of cases, the averages shown in Table I. do not exhibit very large differences between epileptics and normals. But if the results are classified as in Table II., a more marked disparity is observed. (The epileptics examined within 24 hours of a fit are, on the whole, the more severe cases.)

TABLE II.

(Cholesterol in mg. per 100 c.cm.)

—	Number.	Whole blood.	Plasma.
Normals	71	173	167
Epileptics within 24 hours of a fit	45	*147*	*135*
Epileptics more than 24 hours after a fit	79	166	155

Popéa and Vicol (1925) have reported a few results which are in agreement with our own up to this point—i.e., they find that the blood cholesterol of epileptics is lower than that of normals, but they believe that the fall in blood cholesterol is the *result* of the attacks, and does not precede them. It became necessary, therefore, to determine whether the diminution which we had found was merely the effect of the muscular exertion of the fit.

In the first place we examined the level of blood cholesterol in eight normals (medical students) before, immediately after, and half an hour after a short period (one minute) of severe exercise which was deemed equivalent to that undergone during an epileptic seizure. The results are shown in Table III.

TABLE III.

Average blood cholesterol values before, during, and after exercise in mg. per 100 c.cm.

—	Whole blood.	Plasma.
Before exercise	190	172
Immediately after exercise	168	149
Half an hour after exercise ..	186	166

There was invariably a definite fall in the blood cholesterol immediately after a short bout of severe exercise. Cholesterol is taken out of the blood, but how, or for what purpose, we are entirely ignorant.

It appeared, therefore, that the low blood cholesterol in epileptics might possibly be explained as the result of the muscular exercise of the convulsions. It must not be forgotten, however, that whilst in the normals of Table III. the cholesterol value rapidly returned practically to its original level after the sudden fall, in the epileptics the cholesterol appeared to remain low for a much longer period.

We next examined the blood of epileptics at times immediately before and immediately after seizures. Owing to the irregularity in the time of onset of the convulsions, this proved by no means an easy task, but we now have records of 11 instances in which it has been successfully accomplished. A fall in the blood cholesterol, accompanied by a fall in the plasma cholesterol occurred in ten of these cases, the fit taking place at or about the lowest point in the curve—i.e., the fall in the cholesterol level *precedes the seizure*. Subsequently to the fit, the blood and plasma levels rose again towards the normal. In the eleventh case the rise had already begun when the fit developed.

The cholesterol content of the plasma shows the fall and rise rather better than does that of the whole blood.

A study of the 11 curves we have obtained, of which three typical examples are given in Figs. 1, 2, and 3, shows that in the pre-convulsive period the cholesterol level, both in blood and in plasma, is falling, and the fits take place at, or almost at, the lowest point in the curve. The reduction in the blood cholesterol of epileptics is, therefore, not the result of the attacks. What the relationship between the two phenomena is we are not at present in a position to say. In view of the known connexion between the liver and cholesterol metabolism, the findings of Thom (1916) that the ratio of brain weight to liver weight is greater in epileptics than in normals may have significance in relation to our results.

The normal physiological rôle of cholesterol is still largely unknown. Even less is known concerning the part played by this substance in conditions of disease. It is obvious that very serious difficulties remain to be overcome before the bearing of our findings on the ætiology of epilepsy is made manifest. Nevertheless, we believe that the results we have presented above, pointing as they do to a definite metabolic abnormality in this disease, justify a more extended inquiry. With this we are at present engaged.

This investigation forms part of a research into the ætiology of convulsive states which is being conducted at the London Hospital and the Hospital for Epilepsy and Paralysis, Maida Vale, under the general direction of Dr. George Riddoch. It is a pleasure to acknowledge the help which we have received from Dr. R. Langdon-Down and Dr. J. Tylor Fox. Grants towards the expenses have been made by the Medical Research Council and the trustees of the London Hospital Medical College Research Fund.

(*References are given at the foot of the next page.*)

EXPERIMENTAL CANCER:

STUDIES ON THE ACTION OF GLYCERINE ON TISSUE CELLS.

WITH AN ACCOUNT OF A METHOD OF RENDERING ULCERATED TUMOUR TISSUE RELATIVELY SAFE FOR TRANSPLANTATION.

BY ARTHUR COMPTON, M.D., D.Sc. N.U.I.,
DIRECTOR OF LABORATORIES, ALEXANDRIA MUNICIPALITY; LATE FIRST ASSISTANT (RESEARCH) SURGICAL CLINICAL UNIT, ST. MARY'S HOSPITAL.

A PROBLEM of considerable importance in experimental cancer is that of the propagation of the ulcerated tumour. Ulceration means infection, and infected tumour material, when transplanted into healthy animals, results practically invariably in either abscess formation at the site of inoculation with subsequent ulceration, evacuation of pus, and death of the implant, or else—and this is the more frequent happening—death of the animals in the succeeding few days from septicæmia. Thus, indeed, many a tumour strain has been lost whose propagation might well have proved of value in the ultimate solution of the cancer problem.

During the course of experiments on the treatment of experimental tumours in mice according to cytotherapy ideas, the writer found, while testing out the effect of inoculating systematically tumour-bearing animals with small fragments of devitalised, dead as he thought, tumour cells—resulting from the relatively prolonged action of pure glycerine on fresh tumour tissue, and subsequent saline washing—that at times there arose in the treated mice at the site of such inoculations new progressively growing tumours. This result was observed independently on two occasions when it arrested attention and called for inquiry.

As evidence of a marked degree of vital resistance on the part of tissue cells to the action of glycerine, the practical bearing of the observation on the problem of the propagation of the ulcerated tumour was apparent, particularly in view of certain previous studies of the author[1] indicating a comparatively feebler vital resistance on the part of bacterial cells to glycerine than of representative tissue cells like leucocytes. Indeed, the ultimate toxicity of glycerine for leucocytes and for staphylococci had been shown (loc. cit.) to be such that leucocytes could presumably support a glycerine concentration 15 per cent. higher than staphylococci, an appreciable degree of difference.

To test the soundness or otherwise of the foregoing conception concerning the relative toxicity of glycerine for tumour cells and for bacteria, as well as to fix the approximate toxicity of glycerine for tumour cells themselves, were the objects of the present investigation, which is based on a series of experiments carried out with a progressively growing highly virulent, transplantable mammary adenocarcinoma of the mouse, normally giving about 80 to 100 per cent. "takes" on transplantation into normal animals.

[1] THE LANCET, 1926, ii., 326.

Toxicity of Glycerine for Tumour Cells.

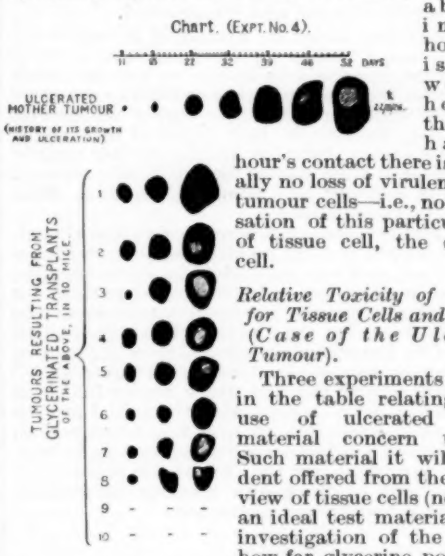
This was estimated by submitting small pieces (0·5 to 1 g.) of fresh tumour tissue to varying intervals of contact with pure glycerine, then washing away the excess of glycerine by immersing the glycerinated tissue in sterile saline (one or several changes) or in glucose broth, after which small transplants (6 to 8 mm.³ approx.) were inoculated subcutaneously into mice, and the number of progressively growing tumours which resulted noted.

The table sets forth the results obtained in five experiments thus carried out, column 3 giving the time interval of the glycerine contact and column 8 the percentage of successful transplants, while subsidiary data is recorded for ulterior reference in the other columns.

No. of expt.	Parent tumour.	Glycerine treatment.		Transplantation into mice.			Percentage of successful "transplants."
		Duration of contact in hours.	Duration of subsequent washing.	No. inoculated.	Previous history.	No. of "takes."	
1	U.	24	5–10 mins. in saline.	6	4 "turn-outs" and 2 normal.	0	0
2	H.	2–4	½ hr. in saline.	6	Tumour-bearing	1	16
3	H.	2	½ hr. in 3 changes of saline.	10	Normal, young.	1	10
4	U.	½	½ hr. in glucose-broth.	10	Normal, adult.	8	80
5	U.	¼	5 mins. in saline.	6	1 "turn-out" and 5 normal, young.	3	50

U., ulcerated; H., healthy.

Consideration of cols. 3 and 8 of this table shows that under the action of glycerine in vitro cellular vitality, or rather virulence (aptitude for in vivo growth), falls off rapidly beyond half an hour's contact, to be almost abolished in two hours. It is noteworthy, however, that up to half an hour's contact there is practically no loss of virulence of the tumour cells—i.e., no devitalisation of this particular type of tissue cell, the epithelial cell.



Relative Toxicity of Glycerine for Tissue Cells and Bacteria (Case of the Ulcerated Tumour).

Three experiments recorded in the table relating to the use of ulcerated tumour material concern us here. Such material it will be evident offered from the point of view of tissue cells (neoplastic) an ideal test material for the investigation of the question how far glycerine possessed—as presumptively established for leucocytes—greater toxicity for bacteria than for body cells.[1]

A typical experiment of this ulcerated series is recorded in the accompanying chart, which provides a complete representation of Experiment 4 (see table).

The upper portion of the diagram records the growth history of the mother tumour in a mouse during 52

LOW BLOOD CHOLESTEROL IN EPILEPSY: REFERENCES.

(*Continued from previous page.*)

Bigwood, E. J.: Assn. de Med., 1924, xv., 24.
Bisgaard, A., and Norvig, J.: Hospitalstidende, 1920, iv., 49.
Bisgaard, A.: Act. Med. Scand., 1925, lxi., 433.
Campbell, J. M. H.: Quart. Jour. Med., 1925, xviii., 393.
Hamilton, B.: Jour. Biol. Chem., 1925, lxv., 101.
Lennox, W. J.: Arch. Neur. Psych., 1923, x., 264.
Luck, J. M., Marrack, J. R., and Thacker, G.: Brit. Jour. Expt. Path., 1925, vi., 276.
Marrack and Thacker (*a*): Ibid., 1926, vii., 265.
Same authors (*b*): Biochem. Jour., 1926, xx., 580.
Norvig, J.: Act. Med. Scand., 1924, lx., 211.
Norvig and Larsen, E. J.: Ibid., 1924, lx., 372.
Okey, R.: Jour. Biol. Chem., 1925, lxiii., Proc. Amer. Soc. Biol. Chem., 33; see also Okey and Boyden, R. E.: Ibid, 1927, lxxii., 261.
Popea, A., and Vicol, A.: Comp. Rend. Soc. Biol., 1925, xciii., 747.
Sackett, G.: Jour. Biol. Chem., 1925, lxiv., 203.
Thom, D. A.: Jour. Neur. and Ment. Dis., 1916, xliii., 422.
Wuth, O.: Johns Hopkins Hosp. Bull., 1926, xxxvii., 389.

days. The skin over the tumour became broken through and ulceration began, as indicated by the shaded areas on the tumour silhouettes, a few days previous to the forty-sixth day of charting. The ulceration, then, in this particular case, corresponded to a little over a week, during which time microbial infection of the tumour substance occurred freely—a time interval sufficient to render it in the ordinary course of events quite unfit for further experimental propagation. The mouse was sacrificed on August 22nd, 1926, the tumour excised, and a small portion of the non-necrotic shell (0·5 to 1 g.) transferred to a sterile test-tube containing pure glycerine. After a contact of half an hour, with frequent shaking to permit as thorough permeation as possible of the tissue by the glycerine, the tissue was removed and transferred for a quarter of an hour to a tube of glucose broth to wash away the excess of glycerine. Small pieces of the washed tissue were then transplanted into ten normal mice. The result is exposed in the remaining portion of the chart.

This latter reveals two facts of great interest. No deaths from septicæmia occurred among any of the experimental animals during the first week following transplantation, and there is recorded a remarkably high percentage of tumour "takes"—actually 80 per cent.

The fact of no deaths from septicæmia establishes the efficacy of the glycerine treatment in ruling out bacterial activity—in other words, of controlling bacterial virulence. This is the more remarkable in that the contact with the glycerine did not extend beyond half an hour—an interval of contact quite inadequate to kill bacteria of themselves, notably streptococci, staphylococci, *B. coli*, and enterococci, as we have shown elsewhere.[2] The action of the glycerine here, then, can hardly be other than that of an attenuating agent of bacterial virulence, in which case it enters into the same category of action as that established by Larson [3] in regard to the loss of pathogenic power of bacteria—*B. anthracis*, *T.B.*, *B. tetanus*, and pneumococci—by contact for short intervals—e.g., a quarter of an hour, with weak solutions of Na-ricinoleate, work which has of late been confirmed by Netter, Andre, Cesari, and Cotoni,[4] as concerns pneumococci and streptococci.

The second fact noted as worthy of interest—the high percentage of "takes" in the experiment—proves definitely that tumour cells had in no way lost their vitality under the experimental conditions concerned—treatment with pure glycerine during an interval of half an hour outside the body followed by washing away of the excess glycerine during another quarter of an hour—for they sprang forthwith into renewed reproductive activity and tumour formation when implanted into fresh animals.

A third fact revealed in this particular experiment, perhaps worthy of passing mention—although it cannot be stressed, as it was impossible for me at the time to follow it up further, owing to my departure for Egypt—is the seemingly increased virulence of the tumour cells following the glycerine treatment. This is indicated by the rather more rapid growth recorded for the daughter tumours ("glycerinated transplants" of the chart) during the first three weeks following transplantation, as compared with the initial growth history of the parent tumour over this same period. The rate of growth in the daughter tumours is, indeed, seen to be such that, by the end of the third week six out of eight of them had attained dimensions leading to skin tension and ulceration.

Summary.

Tissue cells of epithelial type are shown to possess a high degree of vital resistance to the action in vitro of pure glycerine upon them, cancer cells being utilised for the demonstration. It is established that these latter can support contact for half an hour with glycerine without their capacity for subsequent reproduction being affected—indeed, without the least sign of devitalisation.

Further, experiments are detailed which confirm that glycerine is endowed with greater toxicity for bacteria than for tissue cells: in that, after glycerine treatment, tumour cells, as representative tissue cells, survive in vivo while bacteria disappear; and use has been made of this property to solve an important problem in cancer research—namely, the successful propagation by transplantation of the ulcerated tumour.

A vast range of usefulness appears incidentally to stand revealed for glycerine in surgery, especially as concerns plastic surgery and grafting operations.

I wish to thank Prof. C. A. Pannett for his sympathetic interest and enthusiastic encouragement in this research, and others, carried out by me under his ægis at St. Mary's Hospital. It is a pleasure, besides, to acknowledge my indebtedness to the Cancer Hospital Research Institute for the tumour strain here employed.

[2] Loc. cit.
[3] Proc. Soc. Exp. Biol. and Med., 1925, xxii., 357.
[4] C. R. Soc. Biol., 1927, xcvi., 184.

Clinical and Laboratory Notes.

A NOTE ON THE TREATMENT OF SARCOMATOSIS CUTIS AND MYCOSIS FUNGOIDES BY X RAYS.

BY ARTHUR WHITFIELD, M.D., F.R.C.P. LOND.,
PHYSICIAN TO THE SKIN DEPARTMENT, KING'S COLLEGE HOSPITAL.

I WOULD like to draw attention to a peculiar phenomenon which may be observed as the result of the use of X rays in sarcomatosis cutis and mycosis fungoides. Eighteen years ago I had under my care a patient suffering from sarcomatosis cutis whose history was as follows:—

CASE 1.—The patient, a medical man, aged 46, was hit sharply on the left breast by a tennis ball. A flat hæmatoma was produced and never disappeared, but changed its character slowly until it became a brownish, tough infiltration of the skin, apparently about half an inch in thickness. After some months smaller but otherwise similar tumours began to develop on the head, trunk, and extremities. At first they only appeared at long intervals, but when he came to me for treatment, two years after the blow, he stated that he could find a new one, on the average, once a week.

A small tumour was excised to confirm the diagnosis, and the growth was found to be a typical, medium-sized, round-celled sarcoma lying in the deeper part of the true skin. I recommended the use of X rays, and believing that the original tumour was probably the parent of the others I devoted myself first to this. A full pastille dose was given unfiltered and the tumour disappeared leaving no other mark but a slight atrophy and falling in of the skin. Subsequently the whole surface of the body was worked over with pastille doses, spaced appropriately and with such intervening periods of time as would, it was believed, avoid too severe a damage to the patient's general health.

The result of this treatment was most striking; every tumour disappeared and the patient enjoyed perfect health for the next five years. He then returned to me, during the war, with some recurrence on the skin of the neck, accompanied by enlargement of the cervical glands. I was unable at that time to carry out the treatment myself, but sent him elsewhere to receive his X rays, and since that time I have lost sight of him, though I am afraid that he probably died of his disease.

The striking feature of the case lay in the fact that whereas, before he underwent treatment for the primary growth, he was developing fresh tumours at the rate of one a week, no fresh tumours developed after the first pastille dose, and some of the smaller ones involuted before they were treated locally. This peculiar behaviour of the tumours naturally remained in my memory.

CASE 2.—On March 12th, 1925, I was asked to see a maiden lady, aged 60, in consultation with Dr. Raymond Streatfeild. The history of her eruption was somewhat

indefinite. She had suffered from eczema as a child and had recovered, but since then she had been troubled, from time to time, with slight recurrences. The actual disease for which I saw her had probably begun on the scalp two years before.

In the autumn of 1924 she was under the care of two dermatologists, one of whom had not considered the question of mycosis fungoides, while the other, although suspicious, had been unable to find sufficient evidence for a firm diagnosis. When I saw her six months later her condition was a classical example of mycosis fungoides and was advancing with extreme rapidity. The scalp was covered with red, infiltrated patches, partly excoriated and crusted, the face was almost wholly involved in a thick infiltration, and the whole of the trunk and the extremities with the exception of the palms and soles were covered with marked infiltration arranged in the characteristic fantastic, polycyclical patterns. Itching was intolerable and the patient's general condition was very bad.

In agreement with Dr. Streatfeild, I decided to give her full doses of X rays. I pointed out that the result of her condition might well be fatal from a general toxic absorption, but that the disease was in itself fatal and that death resulting from the X ray treatment would be easier by far than that occurring in the usual course of the disease. Accordingly, on the same day full pastille doses, five in number, were given to the top of the head, both sides of the face, and the upper parts of the shoulders behind. One week later five further full pastille doses were given to the nape of the neck, both clavicular regions and both breasts five inches below the clavicular areas. At my suggestion, also, Dr. Streatfeild gave her the first of a proposed series of hypodermic injections of sulfarsenol.

A week later (March 26th) I saw her again. She was then confined to bed and apparently moribund, with a very weak pulse, only just conscious, and taking very little nourishment. The areas irradiated on the first occasion were showing some improvement while those treated on the second were unaltered. An extraordinary change had, however, taken place in the areas not yet treated, and especially in those on the abdomen and the lower parts of the back and buttocks. These had all swelled up and become violently inflamed, the horny layer being lifted off by a profuse serous discharge. Owing to the grave condition of the patient it was resolved not to continue with either the irradiation or the sulfarsenol.

After a week in this condition the patient rallied slowly, the parts first X rayed cleared up entirely, then the second series followed suit, and finally all the rest of the eruption underwent complete involution with exception of a small patch, one inch across, on the outer side of the middle of the right thigh. Her health improved rapidly so that she was able to get up and go down to the country for a holiday.

On May 20th, two months after the last treatment by X rays, I saw the patient again and her condition was as follows. The scalp was normal in colour, though, of course, bald, and the only visible abnormality was some scaling resembling an exaggerated scurfy head. The face, the trunk, and the whole of the extremities with the exceptions mentioned below were apparently quite normal, showing pale, silky skin. On both buttocks, especially the right, there was some ill-defined scaling showing no particular pattern and no infiltration beneath. On the right thigh there was still the single infiltrated, brownish patch about an inch across. A full pastille dose was given to this and to the right buttock.

The subsequent history of the second case is interesting. Not very long after her apparently complete recovery from her disease mental symptoms began to develop, and these progressed somewhat rapidly until the patient was in a condition of dementia. She was then placed in an appropriate home in which she died nine months after the time when I first saw her, without any reappearance of symptoms of mycosis fungoides. A well-known alienist who saw her was of opinion that the mere curing of very widespread dermatosis, not necessarily by such drastic means as X rays, was not infrequently followed by severe mental symptoms.

The point of interest in these two cases, more striking in the second than in the first, is the remote effect of the X rays. The violent reaction in the untreated parts of the eruption suggests that cytolytic products from the irradiated areas reached the rest of the disease by means of the circulation and there set up a digestive process finally resulting in the removal of the infiltration. Whether there is anything in my idea of treating the earliest lesion first I am unable to say, but I suggest that in treating such cases it will be well to treat part, and possibly preferably the oldest part, with the greatest doses that the skin will stand, and then to hold one's hand and watch the result on the untreated lesions.

Finally, I may emphasise the fact that I do not claim to have cured either of these patients. I have, however, the record of one case of mycosis fungoides in which my clinical diagnosis was confirmed by the late Dr. Colcott Fox after microscopical examination by both of us, and this patient, after being cleared by means of X rays, lived without relapse for a great number of years, finally dying of apoplexy when more than 70 years of age. It appears, therefore, that it is justifiable to take great risks in the endeavour to cure patients of a disease which is otherwise invariably fatal, and in its terminal stages is accompanied by hideous suffering.

A CASE OF
TOXIC NEUROLABYRINTHITIS
FOLLOWING THE INDUCTION OF LABOUR BY QUININE.

BY F. PEARCE STURM, M.CH. ABERD.,
AURIST AND LARYNGOLOGIST, LEIGH INFIRMARY, LANCASHIRE.

Tinnitus and vertigo are common enough in predisposed individuals who take large doses of quinine, but they usually disappear with the discontinuance of the drug or the consumer's habituation to it. In the following case three doses were followed by a neurolabyrinthitis which for several years has been progressive.

The patient, aged 32, states that while an in-patient in a local hospital for women in 1924 three attempts to induce labour by the administration of quinine and castor oil were made at intervals of a week, the third attempt being successful. After the first two doses she suffered for 24 hours from severe tinnitus and vertigo, which were, however, transitory. After a third dose, which was followed by labour, the tinnitus became permanent, and has remained so for three years. It varies in intensity; it is worse at the menstrual periods, which are regular; recently it has become occasionally intolerable. When at its worst it is accompanied by vertigo, the last attack of which caused her to fall in the street.

The otoscopic image is normal in both ears; the Eustachian tubes are patent; the nose and nasopharynx free from obvious disease. The caloric labyrinth reactions are normal and equal on both sides. She has perfect hearing so far as this can be tested by clinical methods. Rinné's test is positive in both ears. The upper and lower tone limits for air-conduction as tested by forks, whistle, and monochord are unshifted. She states that her hearing is now often painfully acute. As tested by Bárány's noise-box there is evident dysacusis, but this is so common in sensitive patients with normal ears that its clinical significance is negligible. The only definite functional abnormality is a slight shortening of bone-conduction on both sides (five seconds for C 128).

In the absence of any personal or family history of previous ear, nose, or throat trouble, this case must be regarded as a toxic neurolabyrinthitis due to quinine. Otosclerosis is excluded by the fact that the lower tone limit is unshifted. Even in the earliest stages of otosclerosis, previous to any functional disability appreciable by the patient, a shortened air-conduction for low tones is always demonstrable. I do not know the quantity of quinine taken by this patient, but am informed by my gynæcological colleague, Dr. L. A. Burt, that doses of as much as 10 gr. of the sulphate of quinine may be given for the induction of labour. As an otologist who for many years, following Charcot's practice, has treated "aural vertigo" with maximum doses of ½ gr., 10 gr. seems to me to be an excessive and potentially dangerous quantity.

ADDENBROOKE'S HOSPITAL: PROPOSED ENLARGEMENT.—It has been decided to place a new block in the front of Addenbrooke's Hospital, Cambridge, in line with the front of the out-patients' department. The new block will contain on the ground floor a board room and a lecture room, and on the first floor the wards for children. In the main building new wards are to be added; the cost of the work is estimated at £37,400.

BRITISH MEDICAL ASSOCIATION.

ANNUAL MEETING AT EDINBURGH.

(*Continued from p. 285.*)

SECTION OF SURGERY.

WEDNESDAY, JULY 20TH.

THIS Section met, with Prof. D. P. D. WILKIE in the chair, to discuss

TUBERCULOUS DISEASE OF THE KIDNEY.

Sir JOHN THOMSON-WALKER (London) said that in 1900 the mortality from nephrectomy for this condition was 25 per cent., whereas to-day it was 3 per cent. or less. This advance was due to (1) an increased knowledge of the pathology of the disease, (2) improved technique, (3) earlier diagnosis, and (4) the introduction of the cystoscope and ureteral catheterisation. There were three types of tuberculous disease of the kidney—miliary tuberculosis, tuberculous nephritis, and renal tuberculosis. The first two did not concern the surgeon. In renal tuberculosis the first change was at the apex of the pyramid where ulceration took place; cavity formation occurred later, and later still there was thickening of the wall of the calyx. If secretion was maintained the result was tuberculous hydronephrosis leading to suppression of secretion and to caseation. The symptoms included frequency of micturition, pyuria, hæmaturia, renal pain, and some fever. In spontaneous cure the tuberculous kidney might heal by scarring of the ulcerated pyramid. The cavity might be shut off by fibrous tissue (closed renal tuberculosis); the symptoms disappeared and the condition was only discovered at careful medical examination or post mortem. The urine might yield pus, the kidney might be palpably enlarged, or a shadow might be seen in the radiogram.

Tubercle bacilli were present in the urine of 80 to 90 per cent. of young adults with typical symptoms. They might not be found owing to their scarcity or because they were intermittently present, or because the cavity was closed and shut off from the renal pelvis. In such cases the presence of tuberculous lesions elsewhere, or cystoscopic examination, would lead to a diagnosis. On cystoscopic examination the ureteric orifice was drawn up and catheterisation of the ureters might be difficult; the bladder might be opened and an attempt made to catheterise the ureters direct. Prof. A. Fullerton had devised a method of exposing the ureters extraperitoneally at the pelvic brim and there examining them, opening the lumen for catheterisation. On account of its progressive nature, tuberculous disease of the kidney should be treated by nephrectomy without delay where the second kidney was healthy and there was no contra-indication. At operation the ureter might be divided and cauterised at the lower pole of the kidney, or might be removed by dissection from above or from the iliac fossa. Or the ureter might be left and the patient kept under observation for a year when, if trouble arose, it could be removed extraperitoneally. The wound should be closed completely without drainage in order that the risk of persistent sinus formation might be minimised. In his series the operative mortality was 2·5 per cent., and while 60·3 per cent. of the patients were completely cured, 17 per cent. had died later from various causes. In the postoperative period tuberculin had been administered in small doses.

Dr. A. ROLLIER (Leysin) described heliotherapy as a subsidiary factor in the treatment of renal tuberculosis, and nephrectomy as the only rational method in unilateral disease. Where there was pyuria with tubercle bacilli in the urine delay was dangerous because of infection of the bladder. In the preoperative stage, when the patient was weak, a course of heliotherapy would considerably improve resistance. In the postoperative stage it would prevent a flare-up of quiescent lesions elsewhere which the temporary disturbance of the operation might have occasioned. It might also hasten cicatrisation of the ureteral stump. In chronic and gaping broken-down wounds heliotherapy, well directed, would encourage healthy granulation and eradicate tuberculous infection. In bilateral renal tuberculosis it would assuage pain, encourage autoimmunisation, and bring a feeling of well-being not otherwise obtainable.

Prof. ANDREW FULLERTON (Belfast) said that the questions to be faced were: (1) Is the lesion unilateral? and (2) is cure possible without operation? Of 158 patients with tuberculosis of the bladder 87 were males and 71 females. In 141 cases evidence of involvement of the kidney was found, and in seven of these (5 per cent.) the condition was clinically bilateral. In 29 of the 87 males (33 per cent.) deposits of tubercle were present in vesiculæ, prostate, or epididymis. A history of previous tuberculous lesion was present in 26 per cent. of all the cases; a focus was found in 15 per cent. In 73 cases nephrectomy was performed, with five deaths, all of which occurred in the first 35 cases. Of the 68 survivors, 55 had been traced; 15 had since died, four of them, after long periods of relief, from causes other than tubercle. Unsuspected renal tuberculosis was rife among phthisical patients, in whom there might be no tissue destruction. Ureteral catheterisation might upset the sphincteric action of the ureter and permit contamination of a healthy renal pelvis. After nephrectomy the stump of the ureter near the bladder might be slow to heal and might be dealt with from an incision in the iliac fossa extraperitoneally. In 41 out of the 68 patients not treated by operation the after-history had been traced; 26 (over 63 per cent.) were dead, and only two of the others had since had relief from symptoms by a process of autonephrectomy—i.e., by conversion of the ureter into a solid cord.

Mr. HENRY WADE (Edinburgh) said that in the investigation of a suspected case of renal tuberculosis it was necessary to determine (1) the kidney involved, (2) the state of that kidney and its fellow, and (3) the actual presence of another kidney. Tuberculosis of the kidney could be diagnosed without the presence of tubercle bacilli in the urine, making use of the preliminary radiogram of the renal region which might demonstrate calcareous deposit. The history, the presence of pyuria without demonstrable organisms, and the diminished capacity of the bladder were all significant. Cystoscopically, the presence of the golf-hole ureter was diagnostic. In the pyelogram the presence of cavitation at one part with normal outline elsewhere was typical of renal tuberculosis. If the ureteral catheter stuck after entering the ureter for only 1 or 2 cm., the taking of a ureterogram would demonstrate the typical irregularly dilated appearance of the tuberculous ureter and similarly the normal contour of the photograph of the opposite side would demonstrate a healthy kidney there. Spontaneous cure of renal tuberculosis never occurred, and a healed tuberculous lesion of the kidney had never been seen post mortem. The treatment was nephrectomy, but if by heliotherapy the general state could be improved in the preoperative period the danger of general infection later would be diminished. Irritability of the bladder might persist after nephrectomy owing either to lack of mobility of the layers in the wall of the bladder at the site of a healed ulcer or to persistent single ulcer in the summit of the bladder. In the latter case persistent single ulcer might be excised with complete cure of frequency.

Mr. J. F. DOBSON (Leeds) pointed out that examination was difficult in advanced tuberculosis of the bladder, and to obtain information as to which was the diseased kidney it was essential to catheterise the ureter. Fullerton's method was especially useful where cystoscopy failed; both ureters could be exposed and examined for thickening and mobility and a sample of the secretion could be obtained.

Mr. BERNARD WARD (Birmingham) said that the disease started at the apex of the pyramid and the upper papillæ were more often involved than the lower. The cystoscopic appearance of the tuberculous ureteral orifice was characteristic, but in addition the estimation of combined renal function, chromocystoscopy, and thorough examination of the urine should lead to a definite and accurate diagnosis.

Mr. ERNEST WARD (Paignton) said that in pulmonary tuberculosis there were often renal symptoms which usually disappeared under a hygienic régime. After nephrectomy for unilateral renal tuberculosis there was sometimes recurrence of tubercle in the other kidney or the lungs or generalised tuberculosis. After operation hygienic conditions and the use of heliotherapy were valuable.

Mr. TEMPLE MURSELL (Johannesburg) spoke of the necessity for calling in a cystoscopist whenever a patient was suspected of renal tuberculosis; the diagnosis could then be rejected or confirmed. In Johannesburg there were excellent facilities for heliotherapy, but ultimate cure by this means was impossible, though the late results of the cases operated on were good, and the benefits of preliminary treatment with sunshine were very great.

Mr. GORDON CRAIG (Sydney) referred to two cases treated by tuberculin and general hygienic measures without operation which had remained cured for 15 years. This showed the advantages of climatic conditions and heliotherapy. He mentioned the value of sacral anæsthesia with novocaine in cystoscopic examination of the bladder where there was much irritability.

Sir JOHN THOMSON-WALKER, in reply, said that in no histological examination of so-called healed tuberculous lesions of the kidney had he failed to note evidence of round-cell systems indicating persistence of the condition. Early in the disease the ureter might still be mobile and supple although transmitting infected urine, and therefore in Fullerton's method of examining the ureter extraperitoneally it was necessary to open its lumen and withdraw a sample of the urine. In advanced renal tuberculosis it was impossible to take away the infected perirenal fat and thus completely remove the infected area, but in only 6 per cent. of cases had he found it necessary to remove later a ureter left at the original operation.

Mr. W. RANKIN (Glasgow) read a paper on

Primary Diaphysectomy in Osteomyelitis.

In osteomyelitis, he said, the periosteum of the affected bone was lifted up and the epiphyseal cartilage separated. A portion of bone died and formed a sequestrum which, after a long process of natural separation, was extruded. The process occupied many months, during which there was a constant danger of pyæmia and a general deterioration of health. In diaphysectomy the bone which was doomed to death and sequestrum formation was removed rapidly and cleanly by operation, and new bone was afterwards laid down evenly and soundly, replacing the involucrum of Nature. The operation should not be performed on patients over 12 years of age; the bones most frequently operated on were the humerus, the femur, and the tibia. Where a long bone had been involved an internal glass rod splint was used to maintain the natural length of the limb. A series of cases was shown.

Mr. ROBERT KENNON (Liverpool) said that tenderness at the site of pain in a bone, persisting over 12 hours and accompanied by fever, indicated osteomyelitis and the need for operation. X rays would not demonstrate any change in the bone where pus formation alone, without decalcification, had occurred.

Mr. MARCUS MAMOURIAN (Ashton-under-Lyne) did not favour diaphysectomy in early cases where simple opening of the medullary cavity would suffice. In the later neglected cases the operation yielded brilliant results. A bone-graft could be used with advantage instead of an inert internal splint.

Mr. ROBERT OLLERENSHAW (Manchester) had done diaphysectomy chiefly where one of two bones was infected. In such cases extension and splinting had been the main standby in preserving the line and length of the new shaft.

Mr. RANKIN, in reply, said that among 14 cases there had been only two deaths. The technical difficulties in twisting the diaphysis free from the epiphyseal plate were slight and the plate was never damaged. In the after-treatment, in addition to the internal glass rod, extension devices—e.g., callipers—were used, besides plaster-of-Paris and other splints. After-care was of primary importance in securing a sound result.

THURSDAY, JULY 21ST.

The next session of this Section was devoted to a discussion on the

PLACE OF SURGERY IN THE TREATMENT OF TOXIC GOITRE.

Mr. T. P. DUNHILL (London) said that though many cases of toxic goitre fell into definite groups, practically every type of histo-pathological condition might be found somewhere in a diseased thyroid gland. There was a tendency to multiply types and subdivisions, but the different types were related, and it would ultimately be found that the differences were only in degree. He would refer to the following forms of goitre: (1) primary Graves's disease; (2) secondary Graves's disease, early; (3) colloid; (4) late, which was largely fibrous with small adenomatous nodules, little exophthalmos, and marked nervous and cardiac disturbance; (5) unilateral adenomatous enlargement in secondary toxic goitre; and (6) single adenoma in secondary toxic goitre.

In exophthalmic goitre it was easy to recognise clinically a primary type (symptoms and goitre together) and a secondary type (goitre first, symptoms later), but it was hard to say where the primary type ended and the secondary type began. Histopathologically, also, a primary and a secondary type were recognisable, but some cases which histopathologically were undoubtedly secondary would clinically have been considered primary. There might be great differences between examples of the secondary type, and some of them approached very closely to what was generally called toxic adenoma. A case of primary Graves's disease had well-defined features; an early secondary case was scarcely distinguishable from it. In the late secondary case exophthalmos had become less, the nervous phenomena were less obvious, but cardiac changes were more marked. Working backwards, the toxic adenoma was well recognised, but sometimes there was more than one adenoma and a gland might be bilaterally symmetrical, and the nodules in it scarcely recognisable as adenomata, so that the whole gland approached the type of late secondary exophthalmic goitre.

At puberty there was a tremendous call on the function of the thyroid gland. To meet it there was temporary hypertrophy. Involution should occur after the demand had been successfully met; if it did not, then a colloid goitre remained. The stimulus from outside the gland produced the pathological changes, but the changes thus produced in turn caused the manifestations of the disease. In exophthalmic goitre the stimulus might be subconscious, psychic, or traumatic, or possibly from focal sepsis or deficiency of available iodine. Such a stimulus, acting on the normal gland, caused primary exophthalmic goitre. Where it acted on a colloid goitre only the areas between the vesicles were able to respond. In the primary case the signs and symptoms preceded the goitre. In the secondary type the other signs and symptoms followed the occurrence of a colloid goitre. Both types showed prominent eyes, a hot skin, tremor, and a rapid pulse, and they followed a similar course. In the third decade the colloid goitre of puberty became nodular though still symmetrical. The factors which in a younger patient produced frank exophthalmic goitre might come into

action at any time, but when they were directed against an old fibrotic goitre the areas able to respond were small and the result was late secondary Graves's disease. The pathological change might be scattered throughout the whole gland or limited to one lobe or portion of a lobe, in which case a single adenoma might be formed, removal of which would free the patient from her symptoms.

The place of surgery in the treatment of toxic goitre varied in each of the conditions discussed. Out of 273 patients operated upon, 107 had suffered for four years, 77 for more than six years, 53 for more than ten years. While the patients were under medical care lying in bed disturbing features impossible to arrest had occurred, such as damage to the eye, glycosuria, mania, loss of weight, and auricular fibrillation. The economic factor was important and it was impossible medically to restore these cases to an industrial plane. Surgical intervention varied with the type of the disease. In a primary case operation should be delayed, for many people with slight symptoms could be piloted medically back to health. After six months' persistence of the disease —unless the patient led a sheltered life—surgery must be considered. In primary and secondary Graves's disease with auricular fibrillation there should be no delay beyond the time necessary to get the patient into the best condition for undergoing the operation. When symptoms appeared in association with long-standing goitre, it was a waste of time to delay operation, and neither rest, medical nor X ray treatment would avail, whereas removal of the adenomatous mass would cause disappearance of the symptoms. In preparation for safe operation focal sepsis should be attended to, the pulse-rate should be lowered by rest in bed and iodine medication, and the extent of the operation should be graded. In cases of grossly incompetent heart, coöperation was essential between physician and surgeon. The death-rate varied according to the type of case operated on. For Graves's disease, excluding toxic adenoma, he had found that it was 2·8 per cent. Tetany and damage to the recurrent laryngeal nerve had occurred. To make the operation effective, enough gland substance must be removed to eliminate the toxic effect of the secretion, always bearing in mind the physiological needs of the body. Exophthalmos would largely disappear. In cardiac failure with auricular fibrillation, 87 per cent. of patients had been restored to health with normal cardiac rhythm as a result of operation. Glycosuria had disappeared and dropsy had been completely abolished by the resumption of normal urinary output. Patients who had suffered severely from exophthalmic goitre never returned to their previous condition, but they were a great deal nearer normal after operation, and almost all of them could take up their work and enjoy life once more. In a chronic case, with the heart and nervous system flooded with toxic secretion, sometimes for years, the organs quickly showed relief when this toxic secretion was suddenly reduced by four-fifths, but it was unreasonable to expect that their complete recovery should be other than gradual, and their capacity to withstand strain might never be quite complete.

Prof. G. R. MURRAY (Manchester) said that toxic goitre included all classes which gave general symptoms due either to excessive secretion or changed secretion. In the primary case toxic symptoms preceded thyroid enlargement; in the secondary case the enlargement preceded the symptoms. In thyrotoxic myocarditis the only chance of recovery was by operation, and advanced cardiac œdema was not a contra-indication to operation. The advantages of operation were found in the time saved, the rapid recovery, and the prevention of myocarditis.

Mr. THURSTON HOLLAND (Liverpool) claimed that the primary treatment of early cases of exophthalmic goitre should be by means of X rays, even without any other therapeutic measures. The only disadvantages seen in a large number of cases had been the occurrence of a burn and the risk of producing myxœdema. Early cases subjected to X ray therapy might be completely cured, and later cases should be given a chance.

Prof. R. E. KELLY (Liverpool) said that intratracheal ether anæsthesia in thyroid cases was of the utmost value. Pulmonary complications were very rare, and to prevent damage to the trachea in the passage of the catheter it was wise to X ray the part first. Warming the ether had no advantage as it was cooled in the tubing. In preparation for the anæsthetic, morphia should be used with care in case of maniacal idiosyncrasy. Similarly, the use of iodine might produce undesirable effects.

Dr. JOHN EASON (Edinburgh) said that fulminant cases of primary exophthalmic goitre were rare. In all cases complications could be anticipated and guarded against. With early diagnosis and supervision of individuals verging on the disease deterioration of organs could be allayed. A 5 per cent. operative mortality must be balanced against many years of fair living obtainable by those who were given careful medical supervision. Individual cases varied in their chance of recovery from operation and the operation in itself might not always prevent recurrence of symptoms. The preoperative period required careful handling and the preparation for preliminary minor operative procedures directed against focal sepsis in the teeth, &c., should be as thorough as for the major operation.

Sir WILLIAM WHEELER (Dublin) referred to a series of 82 cases, in 90 per cent. of which the patient had been subjected to medical and X ray therapy for years, and after remissions with increasingly severe crises had come to the surgeon. The only certain means of preventing relapse in toxic goitre was subtotal thyroidectomy, although 50 per cent. of cases showed considerable improvement with Lugol's iodine. X ray therapy was no guard against late relapse and death.

Mr. JOHN MORLEY (Manchester) said that surgical and radiological methods of treatment in the simple primary case caused improvement as contrasted with medical measures which did not. Surgery was more rapid than radiology. The preoperative régime under Lugol's iodine had greatly reduced the mortality. The operation to perform was seven-eighths subtotal thyroidectomy, and it was an advantage to give subcutaneous saline continuously throughout the operation.

Mr. A. J. WALTON (London) said that exophthalmos was a rare complication in colloid goitre and diffuse adenoma of the thyroid. X ray treatment in the preliminary treatment of exophthalmic goitre was useless as contrasted with its advantage in early carcinoma of the thyroid. Fibrosis did not occur after X ray therapy. Since the introduction of Lugol's solution in the preparation of the toxic case for operation there had been no operative mortality and the preoperative period of preparation had been limited in its extent.

Dr. L. A. ROWDEN (Leeds) said that in Leeds no case of toxic goitre reached the surgeon. Treatment was successfully carried through with X rays and no undesirable sequence such as burns had arisen. The results were especially satisfactory in cases with little enlargement of the thyroid but a high basal metabolic rate.

Dr. STARR (Toronto) considered that prolonged X ray treatment had no effect in preventing cardiac deterioration. In a series of 253 operations for goitre only 23 were on patients without toxic symptoms.

Mr. C. A. JOLL (London) said that exophthalmos was never present in true toxic adenoma. Lugol's solution could be used with advantage in cases both of exophthalmic goitre and toxic adenoma. At operation it was advisable to remove nine-tenths of the gland and when a small portion of gland-tissue was left posteriorly there was no danger of damage to the recurrent laryngeal nerve.

Mr. DUNHILL, in reply, agreed that it was undesirable to operate on early cases of Graves's disease. In the treatment and management of such cases it was

necessary for the surgeon, physician, and radiologist to work in close coöperation.

Sir ALMROTH WRIGHT (London) read a paper on the

Rational Treatment of Infected Wounds.

During the late war, he said, wounds were found in a state comparable to those occurring in the Middle Ages. Certainly wounds seen in civil hospital practice before the war held no comparison. Wounds reaching hospital in the war area contained material resembling fæcal matter, and every type of organism could be isolated from them. By the use of an adapted glass tube called a lymph leech, serum was obtained from such wounds, and on examination was found to contain the streptococcus alone. Normal serum had antitryptic power, and organisms growing in serum neutralised this antitryptic power and were termed serophytes. The pus and serum obtained from these grossly infected war wounds were completely lacking in antitryptic power; the organisms growing in them had produced trypsin which had overcome the resistance of the serum and had permitted digestion of the tissues. The end-result was a medium ideal for the nourishment of organisms. In the examination seriatim of layers of pus from a wound, the superficial layer contained a heavy infection of all kinds of microbes, whilst in the deeper layers of pure serum the streptococcus and staphylococcus alone were found. A heavy infection would allow organisms to grow in the blood because of the destruction of the antitryptic power of the serum. But by hole-and-corner methods of infection a less heavy infection would produce a similar effect because organisms hidden in odd corners of a wound had to deal with a smaller area of resistance from the serum, and thus more readily produced auto-digestion of surrounding tissue. The gangrene bacillus grew with difficulty in normal blood but readily in wounds, especially where a tourniquet had been applied or physical exertion had immediately preceded the wound. Always where normal alkalinity had been reduced there was a heavy infection of gangrene. Cases with acid intoxication had amazing recuperative powers after the administration of alkaline fluid. Experimentally, growth of *Bacillus welchii* occurred in blood to which antiseptics had been added. The antiseptic combined more readily with the albumin of the medium than the encapsuled albumin of the microbe and had therefore no value in safe concentration. The ideal combatant to microbic growth was blood serum, and a wound flooded with normal serum quickly became sterile. Dakin's solution produced a delayed out-pouring of serum on being applied to the surface of a wound. Experimentally, it had been shown that 5 per cent. salt solution would produce a quicker and greater outpouring of serum when applied to the surface of a wound, and application of this solution was the most satisfactory of all methods for the treatment of wounds.

FRIDAY, JULY 22ND.

At the third session of this Section there was a discussion on

CHRONIC APPENDICITIS.

Mr. WILFRED TROTTER (London) said that appendicitis first became known to surgery as a curable form of abscess in the right iliac fossa. Later in its milder forms it became known as a pathological condition which never completely returned to the normal. This discovery led to the interval treatment of appendicitis. An appendix removed at operation in the interval state might show: (1) unmistakable residual signs of recent inflammation, either ready to flare up or with fibrosis and obliteration of the appendix lumen; or (2) normal appearance in length, colour, and lumen; or (3) it might be long but fixed at some part and with a non-uniform lumen and spongy mucosa. It might contain inspissated fæcal matter. Furthermore, the ileo-cæcal glands were sometimes enlarged and this enlargement was often associated with a train of symptoms cured by appendicectomy.

The symptoms of quiescent and chronic appendicitis were indistinguishable. The pathological processes occurring were: (1) septic absorption, and (2) disturbance of motility and secretion. In the first of these the enlarged glands in the ileo-cæcal region demonstrated a path of septic absorption similar to that occurring from an infected tonsil. This factor of enlarged glands in relation to the appendix produced a train of symptoms bearing a direct relationship to the youth of the patient. Many attacks of supposed appendicitis in children were really due to acute inflammation of these glands, and tuberculosis in the glands was common, judging by the frequency of calcareous deposit in them. In the differential diagnosis, however, ureteral stones and upper abdominal conditions, such as cholecystitis, must be remembered. In children the effects of septic absorption from an appendicular focus might include osteo-arthritis, chronic pustular affections of the skin, and toxic conditions of the heart. If the appendix was unable to get rid of its fæcal contents its secretory activity must be interfered with. The gastro-intestinal tract was a unit and if the motility of the appendix was disturbed there were distant effects in the colon and stomach. This was borne out by the frequency with which other abdominal symptoms were found in association with the pathological appendix, and every abdomen opened for appendicectomy should be generally explored. Cases could be grouped into: (1) the obvious straightforward appendix case—the child; (2) the case suggestive of other abdominal or pelvic complications—the adult; and (3) the case with abdominal trouble not easy to place especially where there was a possibility of malignant disease. In the two last groups the incision must be planned to permit satisfactory exploration of all abdominal viscera.

Mr. J. W. DOWDEN (Edinburgh) said that where a history was given of symptoms in the classical order—umbilical colic, then vomiting, then right-sided pain—the diagnosis of appendicitis was straightforward, but difficulties arose when this information was not obtained. A significant history in children was lack of appetite, listlessness, and inability to wear a waistbelt because of iliac pain. Tenderness might be at the classical point or to the left of the umbilicus or over the pylorus, but by judicious palpation with both hands the main tenderness would always be found in the right iliac fossa with relief at the other point where the case was one of true appendicitis. Tuberculous ileo-cæcal glands gave a syndrome of gradual onset, diffuse tenderness, and usually demonstrable enlarged glands in the neck. In adults incipient hernia with pain at the internal inguinal ring might simulate appendicitis. The visceroptotic female with a variety of tender areas in the abdomen, with discursive pain, and gurgling colon, often obtained relief in the recumbent posture. She was of the type which operation might convert into the "abdominal woman." Appendicular dyspepsia might closely simulate duodenal ulcer and even produce melæna, but was distinguishable by the intermittence of the symptoms and their variation from day to day.

Mr. VICTOR BONNEY (London) said that the right ovario-pelvic ligament passed from the uterine appendage in relation to the cæcum and appendix. Through this relationship lesions of the appendix, appendages, and ovary might react on one another and give rise to pain. Chronic appendicitis reacting on the pelvic organs gave rise to symptoms in them, and vice versa. An increasing number of ovarian blood-cysts were now seen which were due to intra-ovarian menstruation with an accumulation of blood in the ovary. Severe pain was caused every time the blood was poured out and in the later stages a large adherent mass was formed. In early cases where ovarian enlargement could not be made out the right-sided pain might simulate appendicitis. The pain, however, always recurred immediately before the menstrual period. There might be signs of peritoneal irritation, but the toxæmia and furred tongue of appendicitis were always absent. With retroversion

of the uterus, there might be pain on both sides. Pain on one side in excess would indicate a lesion of the bowel, glands, or appendix in relation to the stretched ovario-pelvic ligament.

Mr. A. J. WALTON (London) said that one attack of appendicitis rendered the patient liable to future attacks, usually of increasing severity. Primary chronic appendicitis was discredited except in the process of fibrosis, which was normal in older people or accompanied visceroptotic and pelvic disorders in women. In a large series of cases the area of hyperæsthesia most commonly found was in the groin, and often erosion of the mucous membrane in the stomach was noted in association with appendicitis. The pathological appendix was one in which either distension, pus, or stenosis could be demonstrated. In a series of cases in which operation was performed in the upper abdomen, appendices of healthy appearance were left, and in only 0·2 per cent. did attacks of appendicitis afterwards occur.

Mr. H. N. FLETCHER (Brighton) referred to the value of following up cases; many instances were brought to light in which appendicectomy had failed to relieve symptoms. A history of a classical primary attack of acute appendicitis was of the utmost value in diagnosing chronic appendicitis in cases with the right-sided pain syndrome. The removed appendix should always be examined histologically to confirm the diagnosis. Examination of the urine was essential to exclude a lesion of the kidney. Abnormal bands such as Lane's and Jackson's were sometimes better left alone and in the after-treatment of the visceroptotic patient whose appendix had been removed postural education and abdominal exercises were useful.

Prof. A. H. BURGESS (Manchester) advocated careful examination and comparison of the two iliac fossæ as regards the site of tenderness and grade of hyperæsthesia. In the straightforward case it was advantageous to examine other viscera, so as not to miss some other condition, as yet quiescent. This was especially necessary in older patients in whom malignant disease of the colon might occasionally be discovered before the onset of symptoms.

Prof. ANDREW FULLERTON (Belfast) said that in hydronephrosis and cysts of the kidney, and occasionally in renal calculus, there might be no blood in the urine. In addition to radiography, useful information could be got from an estimate of the specific gravity of the ureteral samples of the urine. Unilateral diuresis with low specific gravity was found in tuberculous kidney, renal calculus, and cysts of the kidney. In hydronephrosis a higher specific gravity due to inspissation was found. This method of examination was useful in the differential diagnosis of pain simulating chronic appendicitis.

Mr. G. H. COLT (Aberdeen) said that on palpation over McBurney's point in cases of chronic appendicitis a fine crepitation might be felt, quite distinct from a gross cæcal gurgle. This crepitation was typical of chronic appendicitis. Where adventitious bands were present their division at operation would prevent the possible occurrence of intestinal obstruction later.

Mr. TEMPLE MURSELL (Johannesburg) regarded Rovsing's sign as very useful in the examination of patients with right-sided pain. It depended on the production of pain in the right side of the abdomen over the appendix as a result of pressure in the left iliac fossa, and it was diagnostic of appendicular lesions.

Mr. M. MAMOURIAN (Ashton-under-Lyne) said that the incision for operation on a case with right-sided pain should be planned according to individual requirements, which might or might not point to more extensive exploration.

The PRESIDENT (Prof. D. P. D. WILKIE, Edinburgh) said that an excessive number of operations had been performed for chronic appendicitis, and diagnosis in this type of case had become less accurate than in other branches of medicine. The patient willing to have an operation and satisfied with such a diagnosis hesitated to spend time and money in the necessary investigation which would make it more accurate. Patients must be educated to the essential advantage of spending time on such investigation. The value of X rays in the diagnosis of chronic appendicitis was doubtful, but X rays were important in excluding associated lesions in the stomach or duodenum. Palpation of the abdomen while the patient was undergoing screen examination in the X ray room gave useful information about the site of tenderness.

Mr. TROTTER, in reply, remarked on the necessity for thorough preliminary examination of the patient both by clinical and laboratory methods. Chronic appendicular trouble was most rife in children, and appendicectomy might be limited more and more to the young. Tenderness in the right iliac fossa varied in degree with the type of patient. In the systematic physical examination of healthy students visceroptotic defects were commonly discovered. Diseases were due to infections and injuries and not to variations in anatomical contour.

Mr. ALEXANDER MACLENNAN (Glasgow) read a paper on

Burns.

The pain following a burn, he said, was severe except in those advanced and extensive injuries where an ominous quiet preceded death. In children light chloroform inhalation was safer than morphia as an analgesic. In the treatment of the burned surface the continuous bath was useful; in its absence, coverings of sterilised waxed paper were an excellent protective. Picric acid dressings were analgesic and gave protection by coagulating albumin. In the treatment of shock repeated doses of opium and alcohol were of value, and body-fluids must be replaced with saline. If sepsis should arise there was a danger of septic pneumonia, and because of this danger, where grossly damaged tissues were present, early amputation of a severely burned limb or excision of a burned surface was to be recommended. Skin-grafting was useful to hasten healing and prevent contracture, but there must be careful preparation of the field where Thiersch or Wolfe grafts were used. Tunnel grafting could be used at an earlier stage and consisted of burying narrow grafts under the surface; in ten days the covering crust could be removed and a large percentage of "take" might be expected. Areas slow to epithelialise could be usefully stimulated with scarlet red. In the treatment of late contracture it was necessary, before making use of a pedicle graft, to beware of persistent, though dormant, infection in scar-tissue.

Mr. W. C. WILSON (Edinburgh) described the following stages after burns: (1) shock, (2) acute toxæmia, (3) sepsis, and (4) healing. To meet those stages it was necessary in (1) to restore the normal temperature and protect from pain; and in (2) to prevent absorption of protein poisons from the burned area by causing coagulation; whilst in (3) an efficient coagulum protected against sepsis. A 2½ per cent. solution of tannic acid in sterile water applied as an hourly spray had been found of great value in the treatment of burns. The burned area was prepared under a general anæsthetic by carefully cleansing with methylated ether and snipping away all damaged tissue. The tannic solution was then sprayed on at hourly intervals and allowed to dry by exposure to air and heat. In a few hours a brown, hard coagulum formed which gave complete protection from pain and sepsis. In 8 to 14 days the coagulum separated and the area was found to be almost completely covered with healthy epithelium. Where a case was seen late after severe toxæmia had produced exsanguination the most satisfactory measure was to give a transfusion of blood before dressing the burned area in the manner above described. The mortality following burns in a children's hospital was given as 37 per cent., but in a series of 37 cases treated by the tannic method there were only three deaths.

Mr. F. J. STEWARD (London) said that a burn must be thoroughly cleaned and sterilised before being dressed. A general anæsthetic was essential to give the surgeon time and opportunity for this cleansing.

EXHIBITION OF DRUGS, SURGICAL INSTRUMENTS, FOODS, AND APPLIANCES.

THE usual trade exhibition was opened in the Waverley Market Hall on July 18th. A brief notice of the more important exhibits is given below and will be concluded in the next issue of THE LANCET.

DRUGS AND PHARMACEUTICAL PREPARATIONS.

1. *General Drug Exhibits.*

[52] Anglo-American Pharmaceutical Co., Ltd. (Galen Works, Croydon), showed various preparations, including Huxley's witch-hazel jelly, preservative for the skin, and safeguard against midge-bites, sunburn, &c.; Huxley's dusting powder; Huxley's sal-antisepticus, a soluble antiseptic powder similar to liq. thymol co.; Huxley's glycerophosphate syrups; and "Colchi-sal"—capsules of colchicine methyl salicylate.—[63] The Anglo-French Drug Co. (238A, Gray's Inn-road, W.C.1) showed a series of special pharmaceutical preparations, including "Pharmasol Cuprum Radio-active," a non-toxic compound of colloidal hydroxide of copper with mesothorium bromide, for injection in cases of cancer; and "Orargol," a colloidal gold and silver preparation, in ampoules and solution, for general antisepsis, internal and external. At the same stand Modern Pharmacals, Ltd. (2, Calthorpe-street, W.C. 1), were showing the original Lehnhoff-Wyld Sulfarsenol.—[76] Armour and Co., Ltd. (Queen's House, Kingsway, W.C. 2), had a display of their "Glanoid" endocrine and ferment preparations in tablet, liquor, and ampoule forms. Special attention was drawn to specimens of glands preserved in their natural colours. A new silky "non-boilable" catgut ligature was also shown.—[44] Boots Pure Drug Co., Ltd. (Station-street, Nottingham), showed a selection from their ever-increasing issues of modern preparations and fine chemicals, compressed tablets, and surgical sundries. These included "Stabilarsan" (Boots); "Thiostab" (Boots), for chronic metallic poisoning; "Bismostab" (Boots), a suspension of metallic bismuth in isotonic glucose; "Sulphostab" (Boots), a new intravenous organic arsenical; and "Acriflavine" (Boots) in neutral ½ gr. enteric-coated tablets.—[34] Burroughs Wellcome and Co. (Snow Hill Buildings, E.C. 1) had a beautifully arranged exhibit illustrated by illuminated coloured transparencies depicting micro-organisms, taken from photomicrographs, and the various organs of the body. Appropriate drug preparations were shown with each, including "Ephedrine" for hay-fever and asthma, "Avenyl," and "Alepol" (hydnocarpus preparations), for leprosy; Kepler malt extract with hæmoglobin; irradiated ergosterol; Wellcome Brand Dick and Schick test products and gonococcal vaccine and serum; Ergotoxine Ethanesulphonate; synthetic and natural thyroxine, and many others.—[12] G. W. Carnrick Co. (Brooks and Warburton, Ltd., 40–42, Lexington-street, W. 1) showed their well-known gland products, including Hormotone, and their free book on "Organotherapy in General Practice."—[16] The Crookes Laboratories (British Colloids, Ltd., 22, Chenies-street, W.C. 1) had made several additions to their range since the previous year, particularly a 50 per cent. cod-liver oil emulsion in which the taste is entirely covered, and which mixes with almost any quantity of water and remains mixed for four or five days; the vitamins A and D and the iodine content are independently standardised. Two forms of collosol lead were on view—a 0·5 per cent. and a 0·1 per cent.—[1] Messrs. Duncan, Flockhart and Co. (Edinburgh and London) gave special prominence to a display of anæsthetics, organo-therapeutical elixirs and tablets, and ophthalmic and nasal plastic gelatin capsules. The grasses and pollens used in preparing idiopathy tests were exhibited, and attention was drawn to hypodermic solutions, including pituitary, pituitary and adrenalin, peptone, asensitine, and the guaiacol-iodine-camphor compound for rheumatoid arthritis.—[15] Evans, Sons, Lescher and Webb, Ltd. (56, Hanover-street, Liverpool, and 50, Bartholomew-close, E.C. 1), showed a series of bacteriological products and drug preparations, including carefully standardised gland products; infundibulin (containing 10 clinical units per c.cm.); purgoids; sexatones (pluriglandular tablets); and the hydnocarpate and morrhuate of sodium, for leprosy and tuberculosis respectively.—[40] J. Gardner and Son (32, Forrest-road, Edinburgh) presented a large number of surgical instruments, many associated with the names of Scottish surgeons, a special exhibit of rustless and stainless steel, and the "Universal" operating table, with many original features.—[65] Genatosan, Ltd. (Loughborough, Leicestershire), showed, in addition to the familiar Sanatogen, Genasprin, Cystopurin, &c., a coryza spray and a series of local immunity antivirus vaccines for external application.—[21] The Hoffmann-La Roche Chemical Works, Ltd. (51, Bowes-road, N. 13), drew attention to their new laboratories, from which come many well-known preparations including "Omnopon," "Allonal," "Isacen," "Sedobrol," and "Somnifaine"—a liquid hypnotic for oral, intramuscular, or intravenous administration.—[8] J. F. Macfarlan and Co. (109, Abbeyhill, Edinburgh, and 32, Bethnal Green-road, E. 1) were the proud possessors of a letter from Lister about the application of cyanide gauze. They also showed a piece of the original carbolic gauze made for him, and catgut ligatures prepared from his and many other formulæ. Other exhibits included a series of fine pharmaceutical chemicals, notably salicin, pure and safe anæsthetics, and "Opoidine," a standardised preparation of the alkaloids of opium.—[36] Oppenheimer, Son and Co., Ltd. (179, Queen Victoria-street, E.C. 4), had a new form of vaporiser, which reduces all liquids, even non-volatile salts, to a fine, invisible smoke which is not condensible. The popular "Bipalatinoids" and "Pulverettes" were present in many varieties. A new preparation was "Maglactis," a magnesia suspension in gel condition, which never precipitates out. "Roboleine" and "Ung. Anæsthetic Renaglandin" for piles were also shown, and there was a new oxygen generator for producing 99 per cent. pure gas from chemical cubes in the same way as acetylene is made.—[38] Parke, Davis and Co. (50, Beak-street, W. 1) showed a range of eye ointments in collapsible tubes, and of gland preparations, notably parathyroid, guaranteed 90 per cent. pure. Among bacteriological products were the scarlet fever streptococcus antitoxin, preparations for the Dick and Schick test, and the public school anticatarrh vaccine. Sanocrysin was on sale this year, and Hæmoplastin had been improved by a reduction in its protein content. Also on show were "Hypotensive tablets" for blood pressure and "Agar crisp," a laxative resembling a breakfast-food.—[50] The Sandoz Chemical Works (5, Wigmore-street, W. 1) introduced a new calcium preparation, an oxidation product of glucose which can be used intramuscularly or intravenously. "Femergin" and "Lobeline" need no description.—[33] Schering, Ltd. (3, Lloyd's-avenue, E.C. 3), showed "Veramon—the safe analgesic"; Medinal; Neutralon, an antacid, astringent, and analgesic; cubes of pure camphor made from oil of turpentine; Müller's (Schering) conglobation test, and "Krysolgan," a gold preparation for tuberculosis and lupus erythematosus.—[18] E. H. Spicer and Co., Ltd. (72 Wigmore-street, W. 1), are the sole distributors in Great Britain for the Abbott Laboratories, Chicago, the Dermatological Research Laboratories, Philadelphia, and the Chemisch-Pharmazeutische A.G., Bad-Homburg. The chief among many exhibits was their *B. acidophilus* emulsion (Morbact) containing sufficient agar to

keep the bacilli alive and mineral oil to exclude air and protect them from the gastric juices.

2. *Special Drug Exhibits.*

[59] The Anglo-American Oil Co., Ltd. (Albert-street, N.W. 1), displayed their well-known "Nujol," "Cream of Nujol" (paraffin with agar), and "Mistol." The latter is now issued in an atomiser bottle.—[80] Behring Institute (Marburg-L., Germany, and W. Bredt, 41, Great Tower-street, E.C. 3) presented Yatren 105 for chronic amœbiasis and dysentery. Interest was aroused by the new Behring venule for sterile withdrawal of blood, a most convenient piece of apparatus.—[81] Bristol Myers Co. (112, Cheapside, E.C. 2) showed "Sal Hepatica," a saline regulator; "Ipana" tooth-paste; and "Ziratol," a hæmostatic antiseptic.—At Stand 19 Eno's Fruit Salt was dispensed and at Stand 99 Ichthyol Co., Ltd. (18, Adam-street, W.C. 2), showed the original ichthyol in 5 per cent., 10 per cent., and 20 per cent., preparations, and also "Ichtholan," a weak salve made up with equal parts of vaseline and lanolin.—[22] Kaylene, Ltd., showed their colloidal kaolin, also kaylene-ol, an emulsoid combination with colonol liquid paraffin (for which this firm are distributors). Colonol is also prepared with raspberry flavouring for children. Other combinations of kaylene-ol shown were with phenolphthalein (0·5 per cent.) and with magnesium sulphate. As agents for Majornas Angbageri, Goteborg, this firm also demonstrated the Swedish Health Bread Kakrispa, containing 100 per cent. whole-grain rye.—[103] Matthews Laboratories, Ltd. (Clifton, Bristol), in a bower of foxgloves and black cats, displayed the biologically standardised Hatcher cat-unit digitalis. "Nostroline" in the special nasal nozzle tube was also on view.—[14] The four varieties of Petrolagar were shown by the Deshell Laboratories, Ltd. (1/3, Brixton-road, S.W. 9). The plain is a 65 per cent. pure paraffin with agar; the others are unsweetened, alkaline (with magma magnesia), and phenolphthalein.—[69] Scott and Turner, Ltd. (Newcastle and 211, Blackfriars-road, S.E. 1), had an amusing model stage on which the preparation of a dose of Andrews Liver Salt was enacted.

3. *Miscellaneous Preparations.*

[24] Kolynos Incorporated (Chenies-street, W.C. 1) showed their dental cream in its familiar form and also in a concentrated liquid preparation for use as a mouthwash or gargle. Quite new is their "denture powder" for plates, and their skin soap.—[62] Jeyes Sanitary Compounds Co., Ltd. (99, Regent-street, W. 1), showed a comprehensive range of "Cyllin" toilet and surgical preparations, and drew especial attention to "Lano-cyllin," an antiseptic ointment, and "Branalcane," a 33 per cent. solution of glycyl borate in glycerine for diphtheria, sore-throats, &c.

FOODS.

[51] Benger's Food, Ltd. (Otter Works, Manchester), was represented, as well as the other products of the company, notably the peptonised beef and chicken jellies.—[31] Cadbury Bros., Ltd. (Bournville, near Birmingham), provided cocoa for the weary, and showed their range of chocolates, including the less familiar bitter, orange, and milk-and-honey varieties.—[88] Equally refreshing were the glasses of Gaymer's Cyder and Perry (Wm. Gaymer and Son, Ltd., Attleborough), which have been cooling the members of the B.M.A. annual meetings since 1898.—[17] Glaxo (56, Osnaburgh-street, N.W. 1) laid stress this year on Ostelin cream, a 50 per cent. emulsion to which ostelin has been added. Ostelin is also supplied in tablets, each being the equivalent of 1 drachm of cod-liver oil. Malto-Yerbine, the nutrient expectorant, is now available in a new liquid form.—[61] Granose Foods, Ltd. (Watford), showed "Granose" biscuits, made from 100 per cent. whole wheat; "Granovita" gluten bread and biscuits, and gluten meal.—[49] Horlick's Malted Milk Co., Ltd. (Slough, Bucks), had their well-known invalid diet in powder and tablet form.—[60] Keen, Robinson and Co., Ltd. (Carrow Works, Norwich), showed Almata, the synthetic milk food for infants, invalids, and nursing mothers. Robinson's groats, oats, and barley and Keen's mustard ointment were also displayed.—[11] Mead, Johnson and Co. (London Agents: Brooks and Warburton, Ltd., 40/42, Lexington-street, W. 1) showed "Recolac," their reconstructed milk food; "Casec," soluble calcium caseinate, and standardised Newfoundland cod-liver oil.—[73] At the stall of Montgomerie and Co., Ltd. (Ibrox, Glasgow), was found Berina food for infants, Berina malted milk food for older babies and invalids, and Bermaline bread.—[84] The Nestlé and Anglo-Swiss Condensed Milk Co. illustrated their exhibit with a series of photographic transparencies showing the process of manufacture. In addition to condensed milk attention was drawn to a sterilised cream and to the milk food on which seven generations of healthy rats have been reared.—[26] Oxo, Ltd. (Thames House, Queen's-street Place, E.C. 4), showed their meat juice, containing soluble uncoagulated proteins, and their "Oxoid" standardised endocrine preparations, as well as "Oxo," "Hospital Oxo," and "Lemco."—[58] Sister Laura's Infant and Invalid Food Co., Ltd. (Bishopbriggs, Glasgow), showed the baby and invalid food known by this name, and [30] Virol, Ltd. (Hanger-lane, Ealing, W. 5), laid particular stress on "Virol and Milk" for athletes, nursing mothers, and all cases of debility.—[116] Vitalia, Ltd. (17, Bonifacestreet, S.E. 1), showed the meat juice of this name, containing vitamins, organic salts, and 8 per cent. hæmoglobin without extractives.

SURGICAL INSTRUMENTS.

[42 and 53] Allen and Hanburys, Ltd. (48, Wigmore-street, W. 1), exhibited a wide range of surgical instruments and hospital furniture, some in German silver and cellulose enamel (for use abroad). Among the former may be mentioned the A. and H. patent knife handle, the first to be made with detachable blades in England; Souttar's craniotome and steam cautery apparatus, all-British cystoscopes, Lipiodol syringes, Rowland's fasciatome, Chevalier Jackson's endoscopic instruments; Magill's intratracheal spatula with battery in handle. The St. Bartholomew's Hospital pattern operation table had an adjustable clamp and new patent skull support.—[45] Arnold and Sons (John Bell and Croyden, Ltd., 50/52, Wigmore-street, W. 1) had a large series of surgical instruments on view, including a 1927 operation table on oil-pump base; a high-pressure steam vacuum steriliser, with improved radial-arm wheeled door; a new trolley for ward or theatre; goitre and mastoid instruments, as used by Mr. C. A. Joll and Mr. F. F. Muecke; Ironside's portable gas, oxygen, and ether apparatus; Phonophore stethoscopes; a special self-retaining retractor with adjustable blades; a universal battery for illuminating instruments needing 1½ to 8 volts; a syringe for regional anæsthesia; a new model of the Zund-Burguet electrophonöide apparatus; and a special combination pocket set of electrically lit examination instruments for eye, ear, nose, and throat.—[39 and 87] Down Bros., Ltd. (21 and 23, St. Thomas's-street, S.E. 1), showed a selection of surgical instruments and appliances, including many in stainless steel. Among the latter is a new instrument table. Putti's orthopædic table, gouges, and chisels; Howarth's bronchoscopy set; and Ivan Magill's new portable intratracheal apparatus merit special mention.—[112] The Genito-Urinary Mfg. Co., Ltd. (64, Great Portland-street, W. 1), had a series of surgical and optical instruments, with London-made lenses; boilable cystoscopes of several patterns, including Mr. J. Swift Joly's new model universal, with retrograde attachment for diathermy, and cysto-urethroscope for examination and operation in the bladder and posterior urethra; a large model diathermy machine with dry spark-gap; Chevalier Jackson's instruments; and a new electric steriliser for ureteral

catheters. As sole agents in Great Britain, this company had a show of drainage-tubes by J. Eynard, Paris.—[110] Holborn Surgical Instrument Co., Ltd. (26, Thavies Inn, E.C.1), displayed a selection of surgical instruments in stainless steel and electro-medical apparatus, including the latest models of diathermy electrodes, especially a new Stebbings pattern for prostate; Holme's and Beck's naso-pharyngoscopes; posterior urethral tubes for Harrison's aero-urethroscope; an illuminated corneal magnifier; and French's blood-aspiration apparatus and needle with cutting edge on back for easy introduction, tapering bore, and smooth lumen.—[27] Mayer and Phelps (Chiron House, 59/61, New Cavendish-street, W.1) showed many all-British instruments, including the Chiron chloroform inhaler, designed to eliminate all possibility of pumping out liquid chloroform; Dougal's bladder retractor for Cæsarean section; Guthrie's cheek retractor; Ede's tonsil-suturing forcep, which enables the knot to be tied outside the mouth; various gastro-intestinal instruments, notably Max-Page's pyloric forceps and Brown Kelly's modification of Gottstein's dilator for cardiospasm. A demonstration model of Rowling's anæsthetic outfit for supplying a warm atmosphere of oxygen, nitrous oxide, or carbon dioxide, or any combination of these, with or without chloroform, was working beside the stand.—[93] Smith, Hurford, and Drysdale (21, Lauriston-place, Edinburgh) showed surgical instruments and appliances, specially drawing attention to those by Edinburgh surgeons, including Prof. D. P. D. Wilkie, Mr. C. W. Cathcart (a low pressure steriliser), and Mr. Norman Dott.—[90 and 91] Ogilvy and Co. (20, Mortimer-street, W.1), as agents for Stille, of Stockholm, showed for them an inexpensive operating table with foot pump elevating gear, and high grade instruments, many in stainless steel.—[64] John Weiss and Son, Ltd. (287, Oxford-street, W.1), pointed out among their exhibit of instruments De Martel's intestinal clamp, Sinclair's instruments for intracapsular extraction of the lens, Canny Ryall's cysto-urethroscope with specially designed flexible shaft forceps and scissors, and a flexible, boilable lamp for rectal or bladder work.—[56] A. Young and Son (57, 59, 61, Forrest-road, Edinburgh) showed general and surgical instruments in large variety. The firm was associated with Simpson and Lister. Among hospital furniture was exhibited the Morrison bed frame, electric water-heaters and sterilisers, and a soiled dressing bin with pedal.—[9] Theodore Hamblin, Ltd. (15, Wigmore-street, W.1), exhibited a number of ophthalmic instruments, including a student's luminous ophthalmoscope convertible to non-luminous pattern, Lister hand projection lamp with transilluminator, Hertel exophthalmometer, and a new Worth amblyoscope with original pictures.

(To be concluded.)

DONATIONS AND BEQUESTS.—The Vice-Chancellor of the Chancery of Lancaster on July 25th approved payment of bequests under the will of Mr. William Fletcher Rogers, who left estate proved for probate at £76,214, and directed that the residue, £47,000, should be distributed among deserving charities in Cheshire at the discretion of his two sisters and his executors. Amongst the bequests are: £6300, Liverpool Open-air Hospital for Children, Leasowe; £5670, Victoria Central Hospital, Wallasey, and Wallasey Dispensary; £5558, Wallasey Cottage Hospital; £5670, Birkenhead and Wirral Children's Hospital; £2000, Birkenhead Borough Hospital; £1000, Chester Council of Social Welfare; £700 each, Nantwich and District Cottage Hospital, Crewe Memorial Cottage Hospital, Hoylake and West Kirby Queen Victoria Memorial Cottage Hospital and District Nursing Association, and the Heswall Branch of the Royal Liverpool Children's Hospital; £600 each, Wallasey Invalid Children's Hospital and Wallasey Police Distress Fund.—Mr. James Guthrie, Dundee and Broughty Ferry, merchant, on the death of his wife left, among other bequests, £2000 to the Dundee Royal Infirmary to endow a bed in memory of his parents, and £500 each to the Dundee Convalescent Home, the Sidlaw Sanatorium, the Dundee Sick Poor Nursing Society, and the Royal Victoria Hospital, Dundee (for the out-door relief fund).

Reviews and Notices of Books.

THE THOMAS SPLINT.

By MEURICE SINCLAIR, C.M.G., M.B., Ch.B. Edin., late Major, R.A.M.C.: Specialist in Fractures and Orthopædic Surgery to St. James's Hospital, London. With a Foreword by Sir ROBERT JONES, K.B.E., C.B., F.R.C.S. London: Humphrey Milford. 1927. Pp. 168. 15*s*.

THIS book is a real contribution to the surgery of fractures, and could only have been written by a surgeon with the unique experience of the author. Major Sinclair was quick to grasp the principles of application of this useful splint, which was invented by Hugh Owen Thomas, and the numerous possibilities of its adaptation to many needs. By painstaking work Major Sinclair has been able to standardise the use of the splint in a way which makes it a simple procedure to apply it to many varieties of fracture. So adaptable is the Thomas principle that this book might well be called a treatise on fractures of the long bones.

Many interesting statements are made. We read that direct bone extension is necessary in 15 per cent. of fractures of the femur, and that movement of the knee joint of 90 degrees and more is possible in the majority of cases after complete immobilisation for five or six weeks. In the description of the Thomas splint for the leg the lowest level of the ring is stated to be at the junction of the ring and inner upright. Surely the lowest point of the ring should be at the point where the tuber ischii comes in contact with the ring, so that naturally, with any displacement, this bony point of counter-extension will always tend to slip back and remain in contact with it. On page 57 the principle of Thomas is frankly abandoned in the early treatment of fractured femur because of the discomfort of the necessary pressure on the tuber ischii. The method recommended is no better than simple extension in a trough. The jettisoning of Thomas's method is quite unnecessary, as the pressure on the tuber ischii can be relieved to any extent (it should never be quite compensated for) by pulley extension from the lower end of the splint. Such traction is actually recommended for old people on page 58 without apparent realisation of the fact that careful graduation of the pull allows the Thomas principle to be preserved. We are glad to see the author insists that mechanical extension from the tibia is preferable to extension from the femoral condyles.

Fractures of the lower end of the humerus are always very difficult to treat. It is therefore with interest that we find Major Sinclair asserting that better results can be obtained by straight extension in a Thomas splint than by open operation. His fixed and movable elbow joint splints for fractures of the humerus are most ingenious and would seem to meet every requirement of these fractures. His modification of the Thomas arm splint, the umbrella splint, should be more often seen in use. It is an important addition to the appliances at our disposal. We congratulate the author on the production of a very practical and original guide to the management of fractures of the long bones. The methods described, complicated as they may appear from the illustrations, which are many and well drawn, are in reality quite simple.

DIE GASTROSKOPIE.

By Dr. ROGER KORBSCH. Chefarzt des Elisabeth-Krankenhauses, Oberhausen. Berlin: S. Karger. 1926. Pp. 76. M.4.20.

THIS is a short but valuable monograph describing the technique of gastroscopy as followed by the author, and the appearance of the stomach in health and disease. The author uses an instrument of his own pattern with a soft extremity, the passage of which he declares to be almost without danger.

He has performed, in fact, 300 gastroscopies without a single mishap. These examinations were carried out under local anæsthesia, but endoscopy of the stomach obviously requires considerable skill in the operator and coöperation on the part of the patient. Occasionally, more than one attempt has to be made before it can be carried out. Whether gastroscopy will become as simple a procedure as cystoscopy will depend upon future developments, but it would seem that Dr. Korbsch has done something towards making it a commonplace method.

In an interesting chapter on the genesis of penetrating ulcers of the stomach he gives reasons for believing callous gastric ulcers to arise from chronic gastritis. In this latter condition he has observed simple surface ulcers and all stages between these and ulcers accompanied by a demonstrable niche in the radiogram. He declares that the persistence of typical gastric ulcers depends upon the situation in which they arise rather than in any specificity of origin.

A MANUAL OF GENERAL MEDICAL PRACTICE.

By W. STANLEY SYKES, M.A., M.B., B.Ch. Camb., D.P.H. Lond. London: H. K. Lewis and Co., Ltd. 1927. Pp. xi.+216. 7*s.* 6*d.*

Dr. Stanley Sykes has provided the medical profession with a readable and competent book. It contains a variety of information of practical value, well arranged, and on the whole treated with due proportion—the author must have had much difficulty in deciding what to insert and what to omit in so small a volume with so large a reference. The hints as to the conduct of general practice, though very brief, are sound, while the chapters on the superstitions and idiosyncrasies of patients, and that on the occurrence of disease in general practice, should be really informing to the young practitioner. To treat of diagnosis, prognosis, and treatment in some 30 pages is to acknowledge that only teaching of the most cursory nature can be imparted, but the information has been shrewdly selected with an eye upon practical purposes, and is well supplemented by a section upon certain strange and unusual symptoms and happenings that may find reflection in any doctor's case-book. There are chapters on anæsthetics in general and on anæsthetics in practice, some reflections upon vaccination and vaccines, and on the incidence of venereal diseases, and a chapter on midwifery which is prefaced rightly by a note that criticism of the midwifery of the general practitioner appears always to come from those who have not been in general practice.

This is an interesting and useful little manual written from the general practitioner's point of view, and laying stress on what the author calls "non-hospital diseases." It should find many readers.

THE ANATOMICAL BASIS OF DISEASE.

Anatomische Grundlagen wichtiger Krankheiten. Second edition. By Dr. LEONHARD JORES. Berlin: Julius Springer. 1926. Pp. 525. M.48.

THE second edition is almost double the size of the previous one, and, owing to the addition of new subject matter and the altered arrangement, the book is practically a new one. The aim of the author, in which he succeeds admirably, is to correlate pathological anatomy with clinical findings, and to give the physician a picture of the physical structure underlying disease. After a short but instructive introduction on cellular pathology and local and general infection, he considers disease under the following headings: metabolic disturbances, derangements of internal secretion, localised circulatory disturbances, inflammatory and infectious diseases, diseases due to animal parasites, post-infective conditions and toxic changes, regeneration, wound healing and tissue reaction to foreign bodies, tumours, and anatomical defects. An appendix deals with the chondrodystrophies and ectopic gestation. The book contains an immense amount of interesting information which the author has had difficulty in arranging. For example, the section on infective conditions and toxic changes deals, amongst other things, with endocarditis, encephalitis, syringomyelia, acute nephritis, anæmia, metallic poisoning, phosphorus and salvarsan poisoning, ergotism and botulism.

The book is profusely illustrated with excellent photographs of pathological specimens and coloured drawings, and can be recommended to pathologist and clinician.

PSYCHO-PATHOLOGY OF TUBERCULOSIS.

By D. G. MACLEOD MUNRO, M.D., C.M., M.R.C.P. Edin. London: Humphrey Milford, Oxford University Press. 1926. Pp. 92. 5*s.*

IN the preface of this book Dr. D. G. MacLeod Munro frankly and courageously commits himself to the view that there is a definite psychical state which may be fairly referred to as characteristic of tuberculosis. The novelists have made much of this state, but the sober pages of medical literature are by no means so clear, as Dr. Munro's bibliography shows. Any toxin circulating in the body is liable to produce changes in a patient's temperament. This is a commonplace of clinical medicine. But to attempt to correlate these changes with any theory of psychology, or to identify them with the toxin of tuberculosis in particular, is woefully hard. Indeed, Dr. Munro's book seems to demonstrate that it cannot be done with our present knowledge. The facts are all too vague, and the author himself has not really succeeded in producing a clear picture of the psycho-pathology of tuberculosis. Medical opinion does not appear to be any more definite on the question of phthisis and insanity. The view is expressed in this book that there is some ætiological association between tuberculosis and insanity from the point of view of inheritance. Here, again, the author has to fall back on vague clinical impressions. The book also contains three chapters on tuberculosis and genius, and a concluding chapter by Dr. Leonard Browne on psychotherapy in tuberculosis. The first two of these chapters are brief descriptions of the lives and works of certain well-known writers who are known to have suffered from pulmonary tuberculosis; the last one gives practical advice as to the treatment of insomnia, the phobias, mental instability, and so forth, in phthisis by various psycho-therapeutic measures. The book is an honest attempt to deal with an elusive subject, in which there is really not yet available sufficient classified material to provide a definite message.

BIRTH CONTROL.

By JOHANN FERCH. Translated by CHRISTIAN ROLAND. With an introduction by MAUD ROYDEN. London: Williams and Norgate, Ltd. 1927. Pp. 124. 3*s.* 6*d.*

THIS book is written by the foremost Austrian protagonist of birth control. Though the method of election of Herr Ferch is such as might provoke criticism on medical grounds, the claim is made that it is being practised with complete success in the 50 districts into which Vienna has been divided by the League for the Protection of Motherhood, of which the author of this book is the president. The method consists in the fitting upon the cervix of an occlusive cap made of silver or other incorrodible metal by a doctor every month. When her menstrual period is over, the woman visits one of the centres of the League, her cervix is ascertained to be healthy, and the metal cap is adjusted. This is left in situ until the beginning of the next menstrual period, when it is removed by the woman, and left off till the end of the period, when it is again fitted by a doctor. It will be seen that this method requires that the woman shall make a visit every month to a birth control centre. It is claimed of this technique that lacerations of the cervix are never caused by a properly fitted pessary, and that the risk of pathological discharges being retained is small, since the

cap is lifted off the cervix by the pressure of the secreted matter. If the cervix is of a shape which does not admit of such a pessary being fitted, a "Dutch" pessary, made of rubber, is recommended. The rubber cervical cap is not mentioned. Vaginal douching after coitus is also advocated, but soluble pessaries are held to be of little value.

To this book an introduction has been written by Miss Maud Royden, and a biographical note upon Herr Ferch by Christian Roland, the translator. These writers dissociate themselves from a plea, made by the author, that abortion during the first three months of gestation should be sanctioned by law. Mr. Roland considers that such legislation would be in the highest degree inapplicable to this country, though he explains that during the famine years in Austria, when all children born were destined to get rickets, and when each birth diminished the average quantity of food per person, it might well be regarded as preferable to induce an abortion than to bring a living child into the world. A further argument in favour of this legislation in Vienna is the prevalence of quack abortionists, who are apparently permitted to obtrude themselves before the public notice more than in other countries. Dr. Ferch holds that the present legal position with regard to abortion results in numerous people among the poorer classes in Austria resorting to these quacks, to the great detriment of their health.

DIAGNOSIS AND THERAPEUTICS OF DISEASES OF THE STOMACH.

Diagnostik und Therapie der Magenkrankheiten. Eighth and ninth edition. By Prof. Dr. I. BOAS. Leipzig: Georg Thieme. Pp. 817. M.42.

THE eighth-ninth edition of this classic has been greatly revised and brought up to date. The author has added a chapter on occult blood, while there is a considerable amount of new material supplied on the use and value of X rays. Peptic ulcers, both of the stomach and jejunum, have been extensively considered, while the sections on malignant tumours, benign tumours, and syphilis of the stomach have been subjected to searching revision. In this work Prof. Boas considers in detail all the various diseases of the stomach, and his opinions may be regarded as authoritative. The contents are divided into two main parts. The first deals with general examination, both physical and chemical, and contains a section on general treatment and considerations of diet. In the second part the various diseases are considered separately in detail, the sections on symptomatology and treatment deserving special praise. The section on dietetics is written with great minuteness, coloured tables showing graphically the fat, carbohydrate, and protein content of numerous foods and beverages.

The book is well illustrated, and there is a complete index both to subjects and to authors. References to the literature are given at the bottom of each page. Such a complete and exhaustive monograph on the diseases of the stomach cannot fail to be of value to physician, surgeon, and pathologist—the lessons might well be conveyed through them to the public in intelligible form, at a time when the diet of the people is under turbid and turgid discussion.

NURSING MENTAL AND NERVOUS DISEASES.

By ALBERT COULSON BUCKLEY, M.D., Medical Superintendent, Friends' Hospital, Frankford, &c., U.S.A. London: J. B. Lippincott Company. 1927. Pp. 312. 12*s.* 6*d.*

THIS latest addition to Lippincott's series of nursing manuals has been written to comply with the revised standard curriculum for American training schools (1926), and in it Dr. Buckley has given a comprehensive survey of the subject. The author specially stresses two points: (1) the need for treating each separate patient as an individual, and (2) the physical basis of all mental illness. These ideas are developed throughout the book, which is divided into four parts and is exceedingly well illustrated. The first part is concerned with a biological introduction and a clear and concise description of the central nervous system; the diagrams in this section are worthy of special mention. The other theoretical portions of the book are not so well defined, and are more difficult to follow; the student may well become confused by the introduction of somewhat discursive psychology. The second half of the work is devoted to a brief survey of the individual psychoses and the diseases of the nervous system; the nursing care required in each particular group is indicated. There is included a chapter on special nursing procedures, but the space devoted to actual nursing seems strangely inadequate for a work of this kind.

The general effect is that of a text-book of psychiatry which has been cut down, with brief hints on nursing interpolated, rather than that of a book primarily written for the nursing profession. The frequent use of block lettering for emphasis is disconcerting.

JOURNALS.

BRITISH JOURNAL OF OPHTHALMOLOGY.—April, 1927: The bulk of this number is occupied by a minute criticism of Barraquer's operation for the intracapsular extraction of cataract, by J. Russell Smith, the son of Lieut.-Colonel H. Smith, whose intracapsular operation is also well known. There is no doubt that in the hands of their inventors both these operations have proved remarkably successful. The Barraquer operation, however, has been tried on a large scale in India with results that can certainly not be considered encouraging. No doubt everything depends in this operation on the technique of the surgeon and upon whether or not the complicated instrument employed is in perfect order.—The number also contains a note by R. R. James on a case of "Krukenberg's Spindle," a rare corneal condition of uncertain causation, generally bilateral but in this case unilateral. The drawing appended will be useful for reference.——May, 1927: Parenchymatous Keratitis in Trypanosomiasis in Cattle and in Dogs, and in Man, by H. Neame. The evidence shows that this infection bears the closest resemblance clinically and pathologically to distemper keratitis in dogs and to syphilitic interstitial keratitis in man. —There are two papers on cases of atypical sympathetic ophthalmitis. D. J. Wood, of Cape Town, records a case in a fair-haired girl of 9, who contracted gonorrhœal conjunctivitis from a girl with whom she was playing. The cornea perforated with prolapse of iris, and in stitching a conjunctival flap over the hole the lens capsule was wounded, and most of the lens escaped. Rather more than two weeks later there were fine keratic precipitates in the other eye, and other signs of sympathetic, only discoverable with the slit-lamp. The exciting eye was promptly excised and energetic treatment applied. This consisted of (1) weekly injections of salvarsan; (2) six injections of autoserum; (3) atropine and dionine locally. In spite of the fact that definite signs of sympathetic were present in the sympathising eye before the excision of the exciting eye, the ultimate result was good, normal vision being restored. The other case is reported by T. Harrison Butler and J. Jameson Evans. It was not a true case of sympathetic ophthalmia, but a case of sympathetic inflammation, associated with intraocular sarcoma. A severe iridocyclitis in both eyes was due to toxins liberated by the necrosing action of the sarcoma. After excision of the exciting eye there was a rapid improvement in the sympathising one which eventually regained a vision of 6/12.—D. J. Wood: Calcium Deficiency in the Blood with Reference to Spring Catarrh and Malignant Myopia. This paper throws new light on both these diseases. Spring catarrh is explained as a reaction to climatic conditions—dryness, heat, and dust—in young children who have too little calcium in their blood. Small doses of parathyroid gland are found to increase the calcium-content to normal and by

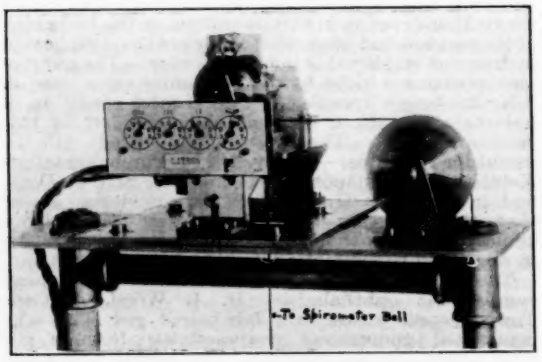
this means a cure is effected. The author suggests that a calcium deficiency in the blood may have some connexion on the one hand with a weakening of the cornea and development of conical cornea, and on the other with weakening of the sclera and development of malignant myopia. If this suggestion can be confirmed the matter is one of great importance, but the evidence so far produced is not very convincing.

New Inventions.

AN INTEGRATING DEVICE FOR CLOSED-CIRCUIT RESPIRATION APPARATUS.

WHEN performing experiments with respiration devices of the closed-circuit type, such as the Benedict metabolism apparatus or the U.S. Air Service "rebreather," it is sometimes desirable to know the total pulmonary ventilation as well as the amount of oxygen consumed by the subject during the period of the test. The amount of oxygen consumed is, of course, equal to the decrease in volume of the gas in the apparatus, and is read off directly from the scale on the instrument. The total ventilation may without appreciable error, be considered as the tota

FIG. 1.

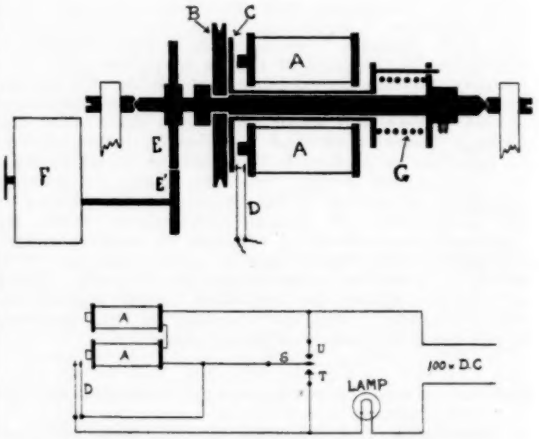


volume of all the inspirations, and may be calculated by mechanically integrating all the down-strokes of the spirometer bell. The simplest device for accomplishing this result is a ratchet wheel (Ludwig's work-adder) attached to the pulley over which the spirometer cord passes, but ratchets have the disadvantage of being both inaccurate and noisy.

The integrating apparatus here described was designed for use with the standard Benedict closed-circuit metabolism apparatus. It is attached to the top of the spirometer frame in place of the usual pulley-arm and pulley (Fig. 1). The down-strokes of the spirometer bell (inspirations) are integrated by means of a gear-train (E and E′) actuated through the agency of a magnetic clutch (C) mounted on the pulley-shaft (Fig. 2). The clutch is controlled by a tambour contactor (W) attached to the mouthpiece (P) of the metabolism apparatus (Fig. 3). During inspiration the clutch (C) engages with the pulley (B) and motion is transmitted through the gear-train (E and E′) to the dials (F). At the beginning of expiration the clutch is withdrawn and the pulley turns freely on the shaft during the expiratory phase. The total ventilation during the period of the test is read in litres directly from the dials.

In detail, the operation of the mechanism is as follows: As expiration begins a wave of air-pressure passes from the mouthpiece (P) along the tube (R) toward the spirometer (Fig 3). Part of its energy is transmitted to the membrane of the tambour (W), which rises and causes a momentary electrical connexion between the contacts (S) and (T). This energises the magnets (AA) (Fig. 2) and the iron clutch (C) is withdrawn. In this movement the back of the clutch-plate compresses the auxiliary contacts (D), which are connected in parallel with (S) and (T), and a steady flow of current is maintained through

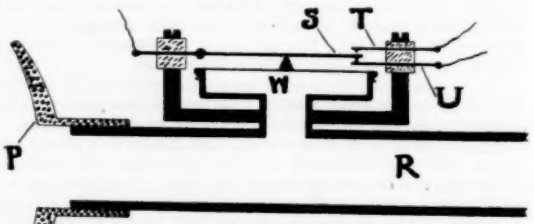
FIG. 2.



the magnets, regardless of any possible vibration of the tambour contacts. Thus, during expiration the clutch is held firmly against the pole-faces of the magnets, the shaft, gears, and dial-pointers are at rest, and the pulley turns freely on the shaft.

At the beginning of inspiration the wave of negative pressure draws the tambour membrane downward, making contact between (S) and (U). This short-circuits the magnets and releases the clutch, which, being pressed forward by the spring (G), instantly engages with the pulley. In this movement the pressure on the auxiliary contacts (D) is released and the circuit is broken. The pulley, clutch, and

FIG. 3.



shaft now turn together as the spirometer bell descends, and the motion is transmitted through the gear-train (E and E′) to the dials.

Inasmuch as the magnet coils are short-circuited at the beginning of each respiration, batteries are not used. Current is supplied from the 100-volt direct current mains, and its flow limited by the inclusion of a 50-watt lamp in the circuit. Since it requires an appreciable length of time for the wave of air-pressure to traverse the length of the tube connecting mouthpiece and spirometer, the quick-acting clutch mechanism will have completed its operation before the spirometer begins to move. Hence there is no error due to lag in the apparatus.

The instrument was built by Mr. S. W. Bush, Oxford Scientific Instrument Works, Wheatsheaf-yard, Oxford.

H. F. PIERCE, B.A., B.Sc. Oxf.,
Department of Pathology, University of Oxford.

THE LANCET.

LONDON: SATURDAY, AUGUST 13, 1927.

THE TRANSFER OF PRACTICES: A LOAN SCHEME.

IN the section dealing with the transfer of practices, contributed to "The Conduct of Medical Practice" by Mr. O. A. HEMPSON and Mr. C. M. OLIVER, solicitors to the Medical Defence Union, it is pointed out that the majority of medical men have at some time or other in their professional career to consider the purchase of a practice or of a share in one; and the writers show that in this vital matter an initial mistake may have disastrous results for an unwary purchaser. They proceed to classify the points which have to be remembered by the purchaser and by the vendor, as they bear on the class of practice which is to be transferred; they discuss the merits of part purchase and the methods of payment. Whatever the type of the practice may be, and whatever proportion of its receipts is being made the subject of transfer, the purchaser will require full information before he is in a position to judge whether any practice is likely to satisfy his requirements, while the vendor can only be placed in a substantial position for the disposal of his interests if he has so conducted his business affairs that he can prove the justice of the price which he demands. In reaching any fitting arrangement these are the essential preliminaries—so obvious that only their more than occasional neglect justifies their mention.

But it frequently happens that, the ground having been cleared in a satisfactory manner, and the purchase price having been arrived at upon the proved basis of average gross receipts, the purchaser is unable to find immediately the capital sum necessary to complete the transaction. This is a familiar situation, and it follows that payments upon some agreed plan of instalment are frequent. Contracts to this effect can be made readily where only a partial transfer of the practice is in contemplation and where the future work of the practice will be carried on through partnership, but in these circumstances also a part payment of the full price is generally required. All methods of payment by instalment, like all complete purchases, must be founded upon a thorough investigation of the receipts and close scrutiny of the prospects, and be made the subject of a properly drawn legal instrument. In the majority of cases the effect of this will be that certain amounts of money will be due by specified dates in accordance with any option given to the purchaser, and to meet these claims adequate security will have to be found; so that whether the whole purchase price or some balance of it, in bulk or detail, be required, the purchaser may find urgent need for what the circulating usurer calls "temporary accommodation." It has before now happened that money has been obtained upon unfortunate terms to meet the situation, with the result that the in-comer to the practice starts loaded with an uneconomical debt. It is true that this is often avoided, because the purchaser and the vendor are equally familiar with the fact that substantial capital sums are often not forthcoming in bulk exactly when the contemplated partnership might be fruitful in results, so that arrangement through the medium of experienced medical agents can usually be effected. But some simple and recognised method for the provision of properly secured loans would be a valuable departure and of great convenience to many practitioners, not necessarily, moreover, those commencing practice.

At a meeting of the Committee of Management of the Medical Insurance Agency last March a scheme whereby practitioners may obtain financial assistance for the purchase of partnerships or practices was presented, and if worked out carefully it ought to solve many problems, which are sometimes urgent as well as delicate. The general principles of the scheme are quite simple. A proportion of the capital required for the purchase of partnerships or practices is to be provided by means of a loan, the arrangements for which will take place between the Agency and the doctor concerned. Full details of the practice will have to be supplied to the Agency, even though this ground may already have been covered to their common satisfaction by the contracting parties, for it is clear that these parties might, as between themselves, overvalue the property and thus seek a loan upon improper security. When the Agency is satisfied that a loan can be officially approved in respect of the sum it is proposed to borrow, which is one warranted by the receipts, and when the Agency is informed what sum the purchaser can find from his own resources, a life insurance policy will be taken out as collateral security for a loan. Only borrowers who are physically fit for life assurance can be helped on the most advantageous terms, and it is proposed to take out the life insurance policy for one and one-half times the amount of the loan, while at the same time a sickness policy is to provide the amount of weekly benefit equalling the total of the obligations created by the loan if the borrower is laid by and unable to continue earning. Thereafter the payment of interest and the gradual repayment of principal can be provided for by equal quarterly instalments spread over the period of four to ten years for which the loan is granted. It will be seen that there is nothing in this scheme which departs from the process, more ordinary in the age of private banking than it is now, of borrowing upon a sound business prospect with the collateral security of a life-policy. The Medical Insurance Agency is filling the useful rôle of guarantor. Having satisfied itself that the professional prospect is sound, the Agency proceeds to back its opinion by a short-term loan, protecting itself by outside assurance against its client's illness or death. The client is trebly advantaged: first by an expert opinion that he is buying a sound thing, secondly by a loan on reasonable terms (the interest charged is about 8 per cent.), and thirdly by the obligation to make wise provision against accident, illness or premature death.

THE DANGEROUS DRUG TRAFFIC.

THE efforts made by international coöperation to control the traffic in drugs of addiction and to limit production to medical and legitimate requirements have not hitherto been rewarded by very satisfactory results. The convention drawn up at Geneva in February, 1925, after two rather acrimonious conferences, has not yet come into operation. By its own provisions it cannot be put into force until it has been ratified by ten of its Signatory Powers, including seven of the principal States represented on the Council of the League of Nations, two of which must be States having permanent representation thereon. According to recent replies in the House of Commons, the only

States besides Great Britain which have at present deposited ratifications are the Netherlands, Czechoslovakia, Bulgaria, Poland, Portugal, the Sudan, and San Salvador. The sanguine anticipations of the President of the second and more important of the Geneva Conferences of 1924–25, that the new convention would "greatly strengthen The Hague Convention of 1912," and "accelerate from day to day and from month to month" the international control of the traffic in dangerous drugs, have not as yet been realised. An astute critic of the Geneva Conferences, Mr. J. P. GAVIT [1] would appear, thus far, to have been justified in his surmise that "the agreement of the first Conference represents no progress worth discussing, and the new drug convention adopted by the second is a thing of printed paper with the odds heavily against its ever being anything else."

Meanwhile, the Home Office has wisely thought fit to issue to the Press a report on the work that is being accomplished under the provisions of the International Opium Convention drawn up at The Hague in 1912, and these have been ratified by nearly every sovereign State in the world whether a member of the League of Nations or not. The report is one of a series made annually by the British Government to the League of Nations; it deals with work carried out in the year 1926, and is the first of the series to be published. Under the Dangerous Drugs Act of 1920, and subsequent amending Acts, which gave effect to the provisions of The Hague Convention from the national standpoint, the internal control of the manufacture, sale, distribution, import and export of opium, morphia, heroin, cocaine, and other substances is well in hand, and if other countries which are parties to The Hague Convention were to follow the example of Great Britain in regard to legislation and administration great progress might be achieved. Thus it is gratifying to learn that the exports of British-manufactured morphia, which amounted to 14 tons in 1914, have been reduced to 73,289 oz. in 1926—a diminution of more than five-sixths. It appears that seven firms are licensed to manufacture medicinal opium, but the preparation of morphine is restricted to two firms, both situated in Edinburgh. Indian opium, which was formerly regarded as too poor in its morphia content, was in 1926 imported into Great Britain in larger amount (95,173 lb.) than was Turkish opium (40,885 lb.). Some Indian opium (3040 lb.) was re-exported to the United States. Steps have been taken to ascertain the consumption of opium, morphia, heroin, and cocaine in hospitals in Great Britain in 1925. The estimated amounts were as follows: Opium, 750 lb.; morphia, 1149 oz.; heroin, 403 oz.; cocaine, 1669 oz. When attention is directed to the international aspect of the traffic in these dangerous drugs it is not reassuring to learn that "information received by His Majesty's Government during the year shows the illicit traffic in drugs continues on a large scale." Seizures in some cases of thousands of ounces of the smuggled alkaloids have been made. The tricks of illicit traffickers are manifold and ingenious. Walking-sticks, pianos, bedsteads, chairs, concealed belts, confectionery have been variously employed to elude customs officers and preventive men. False labels and unauthorised import certificates have been resorted to. Powerful syndicates are believed to conduct the operations of this contraband trade in the Far East, consisting, as was stated at Geneva, of "coteries of people willing to poison their fellows for profit."

All available evidence serves to confirm the view that the world production of these dangerous drugs is greatly in excess of the world's legitimate need, and that the surplus production is easily diverted into illicit and pernicious uses. Both the Council and the Assembly of the League of Nations have recorded the general desire to reduce and restrict production to medical and legitimate purposes, while a joint subcommittee of its Health and Opium Committees proclaimed that "the medical use should be considered the only legitimate use, and that all non-medical use should be regarded as an abuse." The correlation of production and legitimate use of these drugs is necessarily and essentially a problem demanding vigilant international coöperation. The question is to be discussed at the meeting of the Inter-Parliamentary Union to be held in Paris next month. It behoves the representatives of the many legislatures which will there assemble to move their respective Governments to more active effectuation of the international obligations by which they have already bound themselves.

[1] Opium. John Palmer Gavit. Routledge. 1925.

INTESTINAL OBSTRUCTION.

DEATH from intestinal obstruction presents certain peculiar features. Its onset is inevitable, but its arrival is often unexpected. Suddenly and without warning the patient's condition gets worse, and he succumbs within a few hours; so rapidly does he go downhill that any attempt to save him by a surgical operation is a forlorn hope. Very much work has been done to elucidate the pathology of intestinal obstruction but its mechanism still remains obscure. Mr. ST. LEGER BROCKMAN in his Arris and Gale Lecture, published elsewhere in this issue, brings forward some experiments from which he infers that the prevention of the passage of bile along the alimentary canal is one of the main causes of the symptoms which characterise the condition. After confirming G. H. WHIPPLE'S experiments, which show how fatal it is to leave a closed duodenal loop although continuity of the alimentary canal be maintained by a gastro-jejunostomy, he went further and found that if, instead of a gastro-jejunostomy, a lateral anastomosis is made between the duodenum just above the loop and the jejunum below, the animals survive much longer and do not show the rapid and severe symptoms associated with the Whipple experiment.

To test his simple explanation of these phenomena Mr. BROCKMAN tried administration of bile, by the rectal route, to patients with intestinal obstruction. Thirteen patients were treated in this way and only four died; in those who recovered the vomiting, toxæmic symptoms, and lethargy were banished. The dose given was 2 oz. of bile in 4 oz. of saline every four hours. Relief was almost immediate, and when in several instances administration of bile was stopped, the symptoms returned, only to be dispelled again by resumption of the bile enemata. Human bile seemed to be much more effective than ox-bile, which gave rise to abdominal pain necessitating the use of morphia. The clinical histories of the three successful cases reported will be submitted to minute and critical examination. The first was that of a man who had had a gangrenous appendix removed some days previously. His symptoms disappeared under treatment, but the account leaves the reader in doubt as to whether he was suffering from obstruction of the intestine or from acute dilatation of the stomach, and it is uncertain whether his recovery was due to natural disappearance of the obstruction to the stomach or ileum or may be attributed to the

treatment. The second case followed such an unusual course that it is difficult to attribute the result to anything except the treatment employed. The symptoms came on after an operation for appendicitis, and on the fourth day the patient had stercoral vomiting and hiccup. There was no result from an enema. Administration of bile relieved the symptoms and kept them in abeyance until the tenth day. On that day he had no vomiting, and only slight abdominal distension; his pulse-rate was 70; he felt well, read the paper and smoked; yet a laparotomy showed "an absolute obstruction by an omental band about six inches from the ileo-cæcal valve." In the third case, again, the condition may quite well have been acute dilatation of the stomach or obstruction due to adhesions, which as every surgeon knows, often recover spontaneously with the subsidence of the pathological process in the right iliac fossa. Very remarkable, however, is one of the failures. A woman of 65 was operated upon for strangulated hernia, but the surgeon did not relieve the obstruction as he did not detect a strangulated loop "in the other half of the bilocular hernial sac." With complete mechanical ileus this patient was for 16 days kept alive and remarkably fit by means of bile injections.

Undoubtedly the procedure merits further inquiry and trial, but it is to be hoped that investigators will be alive to the fact that (as Mr. BROCKMAN shows) symptoms of true mechanical obstruction may be masked to such an extent that operative relief is delayed until it is incapable of saving the patient's life.

Annotations.

"Ne quid nimis."

SLEEP.

ONE of the sessions of a recent neurological congress at Paris was devoted to the subject of sleep in its normal and pathological aspects.[1] Since the fundamental work of Piéron in 1912, knowledge of sleep has advanced mainly in two ways: Pavlov's experimental researches have led to the conception of an inhibitory mechanism, and clinical observations, especially on cases of lethargic encephalitis, have brought new evidence in favour of the existence of a regulating centre. The openers of the discussion—Dr. A. Tournay and Prof. J. Lhermitte—had evidently been much influenced by these newer contributions to the subject. Dr. Tournay, in dealing with the physiological side, first referred to the state of the muscular and sensory systems and of the vegetative functions during sleep, and then discussed the characteristics and variations of sleep, its immediate causes, and the nervous mechanism by which it is induced. The somatic musculature, he said, seems to be more or less relaxed, but its relaxation is not uniform or constant. In children sleeping with their fists closed a degree of contraction of the flexors of the fingers has been observed. It must be noted also that the masticatory muscles are in a state of tonus and that the sphincters preserve their function; contraction of the orbicularis oculi helps to keep the eyes closed; the eyeballs are turned upwards and outwards by muscular contraction and the activity of the circular fibres of the pupil causes myosis. Tendon reflexes are in general diminished. Babinski's sign and the defence reflexes are present. Sensation is in general diminished, the threshold of excitability being greatly increased; hearing is the sense least affected. Breathing is slower and deeper, inspiration being longer and deeper, and expiration relatively quicker than in the waking state, and ventilation is decreased. The heart's action is slower by reason of a longer diastole and the blood pressure is slightly reduced.

The outward appearances of sleep do not warrant more than a presumption that the patient is sleeping. How can it be told that a man is really asleep? Piéron defined the sleeping state as "the absence of spontaneous dynamic activity and of voluntary reactions adapted both to the nature of the excitants and also to the diverse circumstances of place and time." To this Dr. Tournay adds the occurrence of the phenomena already mentioned and their reversal by the application of a moderate stimulus. This condition of being relatively easily aroused and restored to the waking state distinguishes the sleeper from the man who is in a coma or toxic stuporose state. The depth of sleep has been studied by means of graduated auditory stimuli. In most subjects sleep attains its maximum depth about the end of the first hour and thereafter the depth decreases more or less regularly till the moment of waking. But there are some people in whom the pattern is of an inverted type. The sensory side of thought preserves its activity during the time of falling asleep, but the motor or verbal side comes under the influence of sleep much more quickly. The persistence and perversion of sensory impressions produces "images hypnagogiques" which occur during the time of falling asleep and are not the same as dreams.

The immediate cause of sleep seems to be an inhibition of cortical processes; according to Pavlov, "internal inhibition of conditioned reflexes and sleep are one and the same process." Sleep as a pathological condition is to be distinguished from coma and the stupor produced by certain intoxications; real sleep as a symptom of a diseased state is seen chiefly in two conditions, narcolepsy and encephalitis lethargica. Narcolepsy (sudden onset of sleep so that the patient, if standing, falls down) is a symptom which may arise without known cause or may follow encephalitis or trauma, and there is considerable evidence that it occurs as a result of damage to the grey matter in the floor of the third ventricle, especially in its anterior (hypothalamic) portion. The study of encephalitis lethargica suggests that prolonged sleep may be brought about by inflammation affecting some structure in the anterior part of the mid-brain, and it may be that in this region there is convergence of paths leading to and from higher sleep-controlling centres.

[1] Presse Médicale, July 13th.

ARTIFICIAL ŒSOPHAGUS.

THE condition of an otherwise healthy person condemned to a fistula life on account of an occluded gullet is a pitiable one. Since César Roux, of Lausanne, inaugurated the attempt 20 years ago, there have been a score of cases in which a successful attempt has been made to replace the stenosed œsophagus by an artificial tube extending from pharynx to stomach in the thoracic integument. Dr. A. Fonio reports,[1] from the hospital of Langnau, near Berne, the result after eight years of such an œsophageal plastic operation which has enabled the patient to sit at table and eat like an ordinary person. The history of the case dates back to the year 1908 when after a domestic quarrel the woman swallowed some crystalline permanganate of potash and developed a stricture near the cardia which gradually became impermeable so that for ten years she was dependent on fluid introduced through a gastric fistula. In 1919 Dr. Fonio, in a series of operative measures extending over 17 months, succeeded in improvising a functional œsophagus. In the first stage a piece of thoracic integument 22 × 8 cm. was converted into a skin-lined tube. In the second a piece of transverse colon 15 cm. in length was isolated, with retention of its arterial supply—colon being chosen in order to avoid the danger of gangrene experienced when a loop of jejunum is used for the purpose—to intervene between the stomach and the lower end of the skin tube. If we understand Dr. Fonio aright, it is important to

[1] Schweizerische medizinische Wochenschrift, July 30th, 1927.

retain the peristaltic action of this colon tube in the downward direction. Finally, the upper end of the skin tube was sutured to the cut œsophagus through an incision in the neck, the thyrohyoid muscles being sewn into the upper edge of the incision in order to open widely the mouth of the skin tube at the moment of swallowing. Some minor difficulties and accidents were overcome to such effect that in 1921 food after mastication was delivered with lightning rapidity down the air-filled tube directly into the stomach via the section of colon. No retraction or retention occurred at any time in the lower or middle sections of the tube. Between 1921 and 1927, however, the development of a calcareous goitre resulted in gradual closure of the upper end of the skin tube and the necessity of reverting to the gastric fistula; after removal of the goitre patency was restored and the patient returned well nourished to her factory work. The only respect in which she does not now possess normal function is that she cannot vomit. The net result is a striking achievement in plastic surgery although the indications for its employment may not be frequent. It is obviously only applicable in non-malignant stricture, and Roux, who first devised the technique, gave it up later in favour of early and patient stretching of the stricture by the passage of metallic sounds. Biologically the operation is of interest, as it affords an example in later life of the method so familiar in embryonic development of the production of tubular structures by the tucking in of superficial layers of cells.

PROSPEROUS MEDICAL SCHOOLS IN AMERICA.

NEW endowments and gifts have recently made possible the extension and improvement of research and teaching in various American medical schools. The campaign of the "half century committee" of Johns Hopkins University resulted in a total of seven million dollars from 3992 subscriptions, and the General Education Board of the Rockefeller Foundation have given ¾ million dollars for a medical library at the same University. The new library will assemble 50,000 volumes from various departmental libraries, some of which are now a mile or two apart. The building is to be in the Italian Renaissance style, three stories high, and will house 400,000 volumes. It will be dedicated to Dr. William H. Welch, the first dean of the medical school and now director of the School of Hygiene and Public Health. The medical school of the University of Pennsylvania is raising a fund of three million dollars, of which nearly one-half has already been subscribed. This school has just announced the organisation of a new department of pathology which is to be under the direction of Dr. Eugene L. Opie. The medical schools at Albany and Detroit have each completed new six-story buildings which will replace their former domiciles. The teaching hospital at Detroit, now called the Detroit General Hospital, recently opened a million dollar extension. A million dollars has been received for the foundation of a new radiological institute for the Washington School of Medicine. The institute, besides providing facilities for research, will offer treatment with radium and X rays. In New York city a neurological institute is projected which will cost a million and a half, of which more than half has already been pledged. Western Reserve is raising six millions for a medical centre and is already starting to build a new pathological institute. Of these large sums of money a part is provided by the wealthy foundations peculiar to America, but a considerable proportion comes from the alumni of the Colleges themselves. How this is made possible is revealed by a questionaire recently sent out from the University of Oklahoma School of Medicine to 304 of its graduates. Of the majority who replied the monthly income is said to range from $300 to $4000, with an average of $1100. Most of these graduates are practising medicine in their home State. The State medical journal, in commenting on these results, wonders how much of the incomes are derived from the profession of medicine and how much from investments in oil. If one could believe such prosperity to be shared by graduates from other schools the source of their endowments would not be difficult to discover.

MEDICAL MUNITIONS IN WAR.

THE United States of America have already arranged for the prompt supply of the surgical instruments which would be needed by the Army should large-scale warfare ever break out again.[1] France is similarly planning ahead, for, as M. R. E. H. Salkin[2] points out in a recent article, surgical instruments are just as important as munitions, and the medical department must settle in peace-time their patterns, the number that will be wanted, and the depôts in which they are to be stored and looked after. It must also arrange for their repair in war and for the replenishment of stocks without interference with national production. A census of the surgical instrument industry in France has, therefore, been taken. The instruments are made at three chief centres: Paris, Nogent (Haute Marne), and Thiers (Puy-de-Dôme). In Paris are particularly produced instruments of precision; at Nogent knives, scissors, and forceps; at Thiers bistouries and cutting instruments. It is in these centres replacements will in war-time be made; repairs will be done in other large manufacturing centres. Sufficient quantity of the various grades of crucible steel, the raw material of the instruments, must be planned for. In 1000 parts of steel 10 to 7 parts of carbon are required for bistouries, 5 to 4 for chisels, burrs, and the like, 3·5 for forceps. Stainless chrome steel is being examined and has given good results so far, but has not yet been officially adopted. The industry is carried on largely at home or in small workshops, but sometimes in factories, and arrangements are being made to give it more protection. France exports at present three-fifths of her production, especially to the Latin countries. English steel, the writer admits, is excellent, but he finds the English surgical instruments a little large and less delicately finished than French. France is, however, backward in suture needles and dental equipment, though these are being encouraged. Surgical instrument making should, he concludes, be scheduled as a national industry.

RED CELL AND HÆMOGLOBIN NORMALS.

THE statement that the average number of red cells in the human being is 5,000,000 per c.mm. for the male and 4,500,000 per c.mm. for the female has figured in all text-books of medicine and in most special works on the blood and its diseases for the last 75 years. Its tacit acceptance is, as we have already pointed out,[3] something of a mystery. Probably it will outlast the century, and this in spite of the fact that everyone accustomed to performing blood counts habitually encounters figures far outside this range in normal persons. In 1926 E. E. Osgood[4] showed that for normal men the figure should be in the neighbourhood of 5,500,000 per c.mm.; the same author, in collaboration with H. D. Haskins,[5] has now investigated the blood of normal women between the ages of 18 and 30, and again it is found that the hallowed text-book statements are wide of the truth. Using a carefully standardised technique, these workers find that the average red cell count in healthy women between the ages stated is 4,800,000 per c.mm., 90 per cent. of their subjects giving readings between 4,300,000 and 5,300,000. As regards the hæmoglobin percentage, Osgood showed in his investigations upon the blood of males that the average weight of hæmoglobin is actually 15·76 g. per cent., while the majority of methods in use in this country and in America are based upon an assumed 13·8 g. per cent. Curiously enough, the average

[1] THE LANCET, 1926, ii., 1230.
[2] Arch. de Médecine Militaires, April, 1927, p. 332.
[3] THE LANCET, 1926, ii., 191.
[4] Osgood: Arch. Int. Med., 1926, xxxvii., 685.
[5] Osgood and Haskins: Arch. Int. Med., 1927, xxxix., 643.

percentage of hæmoglobin by weight in the blood of women as estimated by Osgood and Haskins approximates closely to the accepted standard, being 13·7 per cent. The majority of hæmoglobinometers in use in this country give readings in percentage of normal only, but according to the results obtained by Osgood and Haskins this figure is the normal for females and not for males. Hæmoglobin percentages obtained by the Haldane, Tallquist, or Dare methods would, on these findings, require an addition of about 15 per cent. to bring them up to the normal male standard. Investigation of the total volume of packed red cells in female blood showed the average bulk to be 41 c.cm. per 100 c.cm. of blood as opposed to 45 c.cm. in males. Calculation of the volume coefficient which gives an index to the actual size of the individual red cell and may be defined as the volume of red cells per 100 c.cm. calculated to a red cell count of 5,000,000 gives a coefficient for the female of 42·8 as opposed to 41 for the male. This difference in the volume coefficients of male and female red cells would seem to be only explicable on the assumption that the size of the red cell in the female is greater than in the male. This is an observation which appears to have eluded previous workers and obviously demands further investigation.

LOW BLOOD PRESSURE.

WHILST hyperpiesia and its consequences are the subject of limitless investigation and inquiry, the opposite condition, in which the blood pressure is unusually low, is not written about very frequently; except in occasional conditions, such as severe surgical shock and Addison's disease, the symptom of hypotension has seldom been given careful consideration. It is accordingly of interest to receive the exhaustive monograph on the subject recently contributed to our American contemporary, *Medicine*,[1] by Prof. Alfred Friedlander, of Cincinnati University. His conclusions do not suggest that any very important facts have been lost sight of. One large insurance company in the United States, on reviewing 3389 persons of all ages in whom the maximum systolic blood pressure was below 100 mm., found that these proved exceptionally good insurance risks, their actual mortality being only 35 per cent. of that expected, whereas the company's general mortality was 80 per cent. of the expectancy. In almost all the severe infective fevers, including typhoid, pneumonia, influenza, diphtheria, and scarlet fever, a progressive fall of blood pressure has been observed during the acute period of the disease, and in influenza this fall often goes on during the convalescent period; such hypotension is nearly always an indication of myocardial involvement, but loss of vasomotor tone and reduction in the volume of blood in the body are additional factors, especially in influenza. The hypotension of Addison's disease naturally occupies a prominent place in any discussion of this kind; indeed, the relationship between adrenal activity and changes in the arterial tension appears to be at once the chief clue and the principal source of controversy in all blood pressure problems. The brilliant clinical observations of Thomas Addison, made without the help of sphygmomanometers, hæmocytometers, or any of the complex armamentarium of modern scientific workers, have not yet been followed by any satisfactory explanation of the hypotension which is, perhaps, the cardinal physical sign in this disease. Chronic inflammatory processes, especially those affecting the teeth, accessory nasal sinuses, tonsils, gall-bladder, and uterine adnexa, are very often accompanied by low blood pressure, and Prof. Friedlander is of opinion that the sign is here of genuine diagnostic value. Reviewing the effects of tissue extracts in producing an artificial hypotension, it seems clear that histamine, which is a widely distributed constituent of animal tissues, is not the only extractive capable of producing a fall in blood pressure. Parathyroid extract and various hepatic extractives other than histamine and cholin are amongst the more important bodies recently investigated. Apart from the nitrite group there are few drugs having any useful hypotensive action, but cucurbocitrin, the active principle found in water-melon seeds, and glucose given intravenously, are amongst those which appear to be genuinely effective, and further research may show them to be very useful in this connexion.

[1] Medicine, May, 1927. Baltimore: Published by Williams and Williams.

DRIED EGGS AS FOOD.

THE peculiar physiological or rather pathogenic effects of dried egg-white observed by Miss M. A. Boas in the course of experiments[1] on rats at the Lister Institute show what very great care is needed in feeding experimental animals on diets which are more or less artificial in character. They also suggest the question whether dried eggs should in any case form a large item of diet, although it does not follow that what is unsuitable for rats is not good for man. Dried egg-white used as the principal source of protein for young rats leads to eczematous dermatitis, beginning at the corners of the mouth and afterwards spreading, loss of hair, spasticity of the limbs, a kangaroo-like posture, loss of weight, and death, followed rapidly by rigor. These symptoms seem to be produced by any dried egg-white and are not peculiar to the predominant Chinese article. Even when dried at ordinary temperature in vacuo egg-white produces this effect, so that neither temperature nor preservative is the cause. Egg-white denatured but not dried by heat is harmless. Both potato and arrowroot starch furnish some unknown substance which neutralises the effect, whilst cereal starches do not. This protective factor is associated with, but apparently differs from, the water-soluble vitamins—the antineuritic substance and Goldberger's anti-pellagra body. The previous growth of the young rat and the antenatal diet of the mother may have a considerable retarding effect on the setting up of the morbid condition described. The explanation of the results is yet to be found. These observations, like many others, raise the question of the safety of depending, as civilised people seem more and more inclined to do, upon dried, tinned, sterilised, and otherwise preserved foods. They at least indicate the wisdom of including in any diet a large proportion of food which has undergone the minimal amount of preparation consistent with cleanliness and digestibility.

[1] Biochemical Journal 1927, xxi., 712.

HOSPITAL COÖRDINATION.

DURING the last few weeks many converging events have focused attention upon the future of the voluntary hospitals and their relation to the municipal institutions. The subject has been discussed by the British Hospitals Association and the British Medical Association at Edinburgh on lines which suggest a general consciousness that the existing situation lacks permanence and that changes, not yet very clearly defined, in our hospital system are inevitable at no distant date. Prof. Hey Groves, in describing its shortcomings, has been particularly drastic. For years past he has declared it has been moribund and is being painfully kept alive by artificial expedients. Hospital buildings are out of date and badly placed, their equipment is necessarily incomplete, and their resources are insufficient to enable them to keep pace with the demands of the population—demands which are growing with embarrassing rapidity. The professor of surgery in Bristol University sees no way out of the financial difficulty short of State-aided insurance with a municipal and county rate to which the State would contribute an equal amount. This would involve Government control through a central hospital board, which would coördinate the entire hospital system of the country. In all this there seems to be some exaggeration of defects, a minimising of the patent advantages of voluntaryism, and an almost complete

ignoring of the amazing resiliency exhibited by the system since it began to recover from the shock of war.

These destructive criticisms, moreover, interesting and stimulating as they are, leave untouched the line of reform and coördination so regularly advocated in these columns to which particular attention was directed at Edinburgh during discussions on the future relationship of municipalities to the voluntary hospitals. On this subject there is a very large measure of agreement. In advocating the fusion of voluntary and rate-supported hospitals, Mr. H. L. Eason laid stress upon the fundamental factor of medical education. A teaching hospital must be able to admit every type of case, and fusion would facilitate rapid turnover and would enable the municipal hospitals to have a larger proportion of chronic cases. Many of those hospitals are admirably equipped and staffed; the best of them, indeed, range closely alongside the premier voluntary institutions. But they are isolated from the general hospital system both as regards medical teaching and the reception of patients. Their beds, too, are often standing idle while those of almost every voluntary hospital in the country are not only full, but besieged by waiting crowds. The wastefulness of such an arrangement is glaring, and the time has clearly come for its revision. Two hospital systems existing side by side, with no door of communication, but with a socio-economic barrier between them, are so anomalous that, in the new situation that has arisen since the war, it is impossible to defend it. It is fairly obvious, however, that it would be impossible to stop at the mere removal of barriers crying out for demolition. The process would leave gaps that could be filled only by a somewhat delicate process of repair. "Coördination" is a blessed word, but its virtues lie not in its mere repetition as a magical formula, but in a reasonable appreciation of its spirit and in its deft application in particular circumstances. Coördination between the voluntary and the municipal hospitals is a certainty of the not distant future, but when it comes about we must be prepared for a pitched battle between the advocates of Government control and tax and rate aid for the entire hospital system and those who are anxious to preserve all that is precious, human, and pitiful in voluntaryism. The voluntary hospitals are fast ceasing to be mere charities and are developing into highly important media of self-help, as witness the innumerable contributory schemes and other methods of supplementing charity by coöperation which, despite their vigour, are still in their infancy.

When these great questions definitely come up for settlement much will depend upon the attitude of the voluntary institutions. Speaking the other day to the British Hospitals Association as its President, Sir Arthur Stanley uttered a statesmanlike warning against aloofness from real reform. The hospitals, he said, must be prepared for "readjustment, correlation, development." That is not to say that they must necessarily become a mere department of the national administration. Linked together under some central control which would redistribute strength and prevent overlapping and duplication, and yet do its spiriting gently, the voluntary hospitals would have the satisfaction of knowing not only that none of their efforts was being wasted, but that many of them were being reinforced. Moreover, free intercommunication between the voluntary and the municipal institutions would distinctly ease the financial situation. It is assuredly not beyond the wit of man to readjust, correlate, and develop, to use Sir Arthur Stanley's crisp and useful phrase, without destroying the historic basis of our hospital system. That basis, which began with pure charity, is rapidly developing, as we have said, into self-help and coöperation. Both of those things are virtues of a highly practical character, and to wave them aside in favour of some symmetrical theory would be to flout some of the best instincts of mankind.

PROF. RUDOLPH MAGNUS.

NEUROLOGY owes much to Prof. Rudolph Magnus, whose death at Pontresina we have already recorded. He was only 53 years of age, but his fame long ago passed beyond the University of Utrecht, where he was appointed to the chair of pharmacology some time before the war. His earlier work covered a wide field, but his name will always be associated mainly with an intensive study of posture carried out during the last 22 years of his life. His aim was to dissect the physiological functions of the eyes, labyrinths, otoliths, neck-tissue, and lateral end-organs of the body in so far as they contribute to the maintenance of normal posture, and in this intricate research his precision was remarkable. The attention which he gave to detail amounted to genius and has resulted in an important increase in our knowledge of the function of structures that have long been familiar anatomically. Starting with the reflexes of the spinal animal, Magnus and his collaborators went on to study the attitudinal and "righting" reactions of animals in which less and less of the brain had been destroyed. Twenty years were devoted to research on the phenomena provided by the decerebrate animal (mid-brain level), and at the time of his death further work was in progress on those of the so-called thalamus animal, in which the cerebral cortex, pyramidal tracts, and corpora striata are out of action. One of the results of all this investigation has been to show that when equilibrium is upset the mechanism by which it is restored is purely reflex; the righting and attitudinal reactions of animals are wholly involuntary, and subcortical mechanisms furnish normal starting positions for each new cortical action. The experiments leading to this conclusion were ably described by Prof. Magnus in the Cameron Lectures[1] of 1926, and, as we pointed out at the time, it is permissible to suppose from his results "that volition may be eventually driven to the highest transcortical levels, and that a part at least of cortical activity may be shown to be of an involuntary character."[2] To go further than this is mere speculation, but Prof. Magnus has appreciably narrowed the territory of volition as previously recognised. His untimely death ends a career which has included some of the finest neurological work of the present century.

Sir James Michelli is resigning the secretaryship of the Seamen's Hospital Society which he has held for 40 years. When he took office the income of the Society averaged £12,000 per annum; it now exceeds £80,000, and six establishments are maintained by the Society instead of one.

THE twenty-ninth annual report of the Metropolitan Asylums Board, which has just been issued, deals with the year ended March 31st, 1927. The medical portion occupies 300 of the 420 pages and is divided into four sections—infectious diseases, mental diseases, tuberculosis, sick children—each of which can be obtained separately, price 1*s*. The whole report is obtainable for 5*s*. from the offices of the Board, Victoria Embankment, London, E.C. 4.

---

[1] THE LANCET, 1926, ii., 531 and 585.
[2] Ibid., p. 657.

CONDENSED MILK.—The Minister of Health is about to make regulations amending the Public Health (Condensed Milk) Regulations, 1923, so far as they relate to the labelling of condensed milk. Copies of the draft regulations can be obtained under the description "Draft, dated August 5th, 1927, of the Public Health (Condensed Milk) Amendment Regulations, 1927," from H.M. Stationery Office, Kingsway, London, W.C. 2 (price 1*d*.). Any representations on the subject should be addressed to the Secretary to the Ministry at an early date.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

CCXXXVI.

THE TREATMENT OF SINUSES.

I. GENERAL CONSIDERATIONS.[1]

"A SINUS is not a disease but a symptom." Successful treatment therefore depends on the diagnosis and removal of the cause, and is not merely a question of the use of some special irrigation, or vaccine, or artificial sunlight, or ionisation, or the injection of Beck's paste, or in fact any of the very numerous plans that are often more or less indiscriminately employed. All these methods have their place in treatment, but they must only be used with relation to the cause in any particular case. To treat a residual sinus with artificial sunlight may often be most appropriate, but it is a gross violation of surgical principles to use a vaccine for the cure of a sinus over the jaw instead of removing the buried fragment of tooth which is so often the causative factor.

Most sinuses can be classified under one or other of the following heads:—

1. Foreign bodies derived from the outside.
2. Foreign bodies derived from the tissues themselves, such as dead bone, or teeth, or calculi.
3. Defective drainage of abscess cavities.
4. Communications with a secreting epithelium.
5. The persistence of some vestigial structure.
6. Tubercle or actinomycosis.
7. Malignant disease.

Sinuses are said to be *active* when the cause remains, and are spoken of as *residual* when the track persists, in spite of the fact that the original causative factor has been effectively dealt with.

Sinuses due to Foreign Bodies.

We must now consider some of the varieties of sinus in detail, and first *those due to foreign bodies which have entered the tissues from without.* The commonest examples are associated with missiles, with which everyone became so familiar during and after the war. Even at this late stage it is necessary to insist on the routine X ray examination of every case in which there is the remotest possibility that a metallic foreign body may be the cause of a sinus. The discovery of such a foreign body is usually easy, but it may be found at some considerable distance from the orifice of the sinus which it is causing, and the X ray may have to include a large field. The removal of such a foreign body will cure a sinus due to this cause. Removal may be carried out via the dilated sinus, but it is often very much easier and better to cut directly down on to the foreign body by a shorter and more direct route. There are some cases in which the sinus persists even after the removal of a foreign body. This is not uncommonly due to some portion of clothing which has been carried into the tissues at the same time as the metallic fragment, and which has escaped removal. There are also many foreign bodies from without which do not show on X ray examination, and yet may be large and troublesome, such as thorns or pieces of glass. The history must be closely scrutinised, and exploration may have to be carried out for their detection and removal.

Another class of external bodies are those introduced in the carrying out of some surgical operation. In the days when silk was more commonly used for ligatures and sutures, it was often the cause of troublesome sinuses which persisted until some offending portion was either extruded naturally or removed. In a case of persistent abdominal sinus I removed a thick silk ligature used to secure the pedicle of an ovarian cyst seven years previously. Silver wire and silkworm-gut, and even heavily chromicised catgut, may likewise be offenders. Drainage-tubes are every now and again lost in the tissues, and have been known to be the cause of persistent sinuses resulting from empyema, appendix abscess, necrosis of the long bones, &c. Sometimes a rubber tube retained for too long in a wound may itself be the cause of an indolent sinus. Fragments of gauze or cotton-wool may also be overlooked, and in one striking case a troublesome sinus of three years' standing in connexion with the upper jaw proved to be due to a small piece of sponge which had been packed into a tooth socket and had been forgotten.

Foreign bodies derived from the tissues themselves are sufficiently numerous and important, and among these fragments of bone in the form of sequestra, and teeth or portions of teeth, supply the commonest examples. There is no end to the sinuses about the jaws which turn out to be due to diseased teeth or fragments of teeth left behind after extraction, roots driven into the substance of the jaw as the result of unskilful attempts at extraction, or roots which have been left behind, have healed over, and have given rise to sinuses even years afterwards. Sequestra are such well-known causes of sinuses that they are not likely to be overlooked, but it must be remembered that even a very small sequestrum will sometimes be the cause of a persistent sinus, and that the orifice of the latter may be at some considerable distance from the focus of diseased bone. Other foreign bodies, such as calculi, may be the cause of sinuses, and I have removed gall-stones which have been the offenders. In one notable case an enterolith from the appendix kept up a sinus for 40 years, the causation being proved by the cure which immediately followed its removal.

Defective Drainage of an Abscess Cavity.

Sinus may be due to the defective drainage of an abscess cavity, such as an empyema in the chest, or the similar condition in the antrum of Highmore. In the chest, the situation of the opening is only one of the factors that has to do with the persistent opening, but it may be the main one, as in those cases of empyema which have burst spontaneously somewhere in the neighbourhood of the nipple or have been deliberately opened too high up. The immediate requirements of the case are met, and the patient's condition improves, but the sinus persists because only the top of the collection of fluid has been tapped, and it requires an incision in a more dependent place to bring about proper drainage of the cavity and to hold out prospect of cure of the sinus.

Communications with a Secreting Epithelium.—Persistent Vestigial Structures.

Sinuses due to communications with a secreting epithelium include those most commonly found about the anus, which we speak of as "fistula." These persist because of their communication with the bowel. Sinuses due to vestigial structures are most frequently found in the middle line of the neck, where the thyroglossal fistula is a classical example, or in the side of the neck in the situation of the branchial clefts. They may also occur between the anus and the coccyx, where postanal dermoids are found. The clue to the exact nature of the latter type may be furnished by the appearance of hairs or even a tuft of hair which may project through the opening.

Sinuses due to Tubercle.

Then there are the sinuses in which tubercle is the cause. The opening on the surface may communicate with a deep-seated focus either in connexion with a tuberculous gland, as in the neck, with bones and joints, or occasionally with the peritoneal cavity, as in those troublesome sinuses about the umbilicus or the right iliac region where the primary disease is in the bowel. Sometimes the track itself is not actually tuberculous but is merely a communicating channel of granulation tissue between the tuberculous focus and the surface, but more usually the track is actually engrafted with tubercle, and it is these sinuses which furnish the majority of the residual sinuses which have been mentioned.

[1] An article by Prof. Grey Turner on the Treatment of Special Sinuses will appear in this series next week.

In the same situations actinomycosis may be the causative factor.

Malignant Disease.

Malignant disease is one of the rarest causes of sinus, but it must be borne in mind. In this connexion it is as well to mention that sinuses of long duration, perhaps usually associated with very deep-seated and chronic bone disease, may eventually themselves become engrafted with epithelioma, although this is a very rare event.

The Indications for Treatment.

A sinus should never be allowed to persist without an attempt at its diagnosis and cure. It is not only an annoyance, but a potential source of danger, because it may be a focus for continuous septic absorption and it is liable to outbursts of acute infection. Chronic absorption may lead to a whole train of evil symptoms, sometimes even culminating in lardaceous disease. Tetanus has been known to arise and malignant disease may certainly follow. For these reasons every sinus requires careful investigation :—

1. By ascertaining the history accurately and by critical consideration of all the circumstances.
2. By ordinary examination with the object of ascertaining its relation to surrounding parts.
3. By X ray examination, in some cases with the aid of opaque injections.
4. By cautious use of the probe.
5. By noting the effect of treatment.
6. By reconsideration from time to time.

From what has been said it is clear that the most important indication is to discover and remove the cause, and if this is done the great majority will soon heal.

G. GREY TURNER, M.S. Durh., F.R.C.S. Eng.,
Professor of Surgery in the University of Durham ; Surgeon, Royal Infirmary, Newcastle-on-Tyne.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surg. Lt.-Comdr. (D) T. A. B. Corless is placed on Retd. List at own request.

Surg. Lt.-Comdr. A. W. Gunn to be Surg. Comdr.

Surg. Lt. A. H. Harkins to be Surg. Lt.-Comdr.

The following appointments are notified :—Surg. Comdr. : C. H. M. Gimlette to *President*, addl., for three months' post-graduate course. Surg. Lt.-Comdrs. : A. W. McRorie to *President*, addl., for three months' post-graduate course ; F. C. Hunot to *Yarmouth ;* and W. E. Heath to *Fisgard ;* L. S. Goss to *Suffolk ;* and J. C. Brown to *Vivid*, for *Rodney*. Surg. Lts. : N. A. Dickinson to *Hermes ;* and L. P. Spero to *Adamant*.

ROYAL NAVAL VOLUNTEER RESERVE.

Proby. Surg. Sub-Lts. F. T. Doleman and A. R. Thomas to be Surg. Sub-Lts.

ROYAL ARMY MEDICAL CORPS.

Lt.-Col. J. H. R. Winder retires on ret. pay.

Capts. to be Majs. : T. Menzies, D. H. Murray, E. Underhill, R. A. Mansell, and J. T. Scrogie.

Lts. to be Capts. : C. R. Christian, C. W. Greenway, R. J. Rosie, J. Huston, and E. G. Dalziel.

ROYAL HOSPITAL, CHELSEA.

Physician and Surgeon : Maj. E. A. Strachan, vice Maj. E. T. Potts, C.M.G., D.S.O., who has vacated the appt.

REGULAR ARMY RESERVE OF OFFICERS.

Col. T. C. MacKenzie, late R.A.M.C., having attained the age limit of liability to recall, ceases to belong to the Res. of Off.

TERRITORIAL ARMY.

Lt. A. H. Macklin to be Capt.

E. J. G. Glass (late Offr. Cadet, Edinburgh Univ. Contgt., Sen. Div., O.T.C.), F. Lishman, J. N. Russell, F. Heywood-Jones, and M. S. Scott to be Lts.

The King has conferred the Territorial Decoration upon Lt.-Col. Andrew Johnstone Brown and Majs. Henry Neville Burroughes and Ronald Ogier Ward.

ROYAL AIR FORCE.

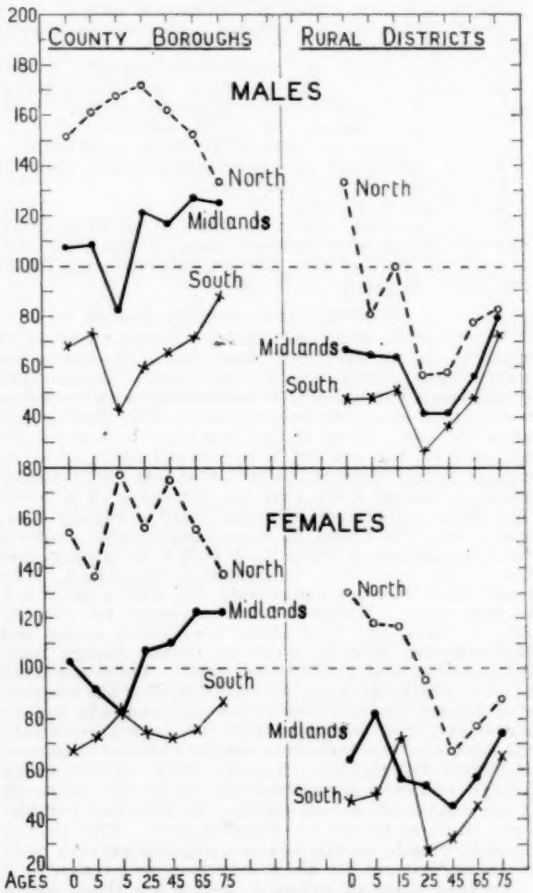
Squadron Leader F. C. Jobson relinquishes his commission on completion of service.

Special Articles.

THE GEOGRAPHY OF MORTALITY FROM BRONCHITIS AND PNEUMONIA.

NEARLY one-seventh of deaths from all causes come under the two rubrics of bronchitis and pneumonia, and a study of the incidence of these diseases, which the Registrar-General's report[1] renders possible, is therefore of great importance. Such a study leads inevitably to the conclusion that a large part of mortality from these diseases is avoidable. A part of the teaching of Tables XLVI. and XLVII. in the report can be seen graphically displayed in Figs. 1 and 2. These diagrams show for three divisions of England the male and female death-rates for the years 1921–25 from bronchitis and pneumonia respectively at each of seven age-periods, in proportion to the mortality for the same ages in England and Wales stated as 100.

FIG. 1.



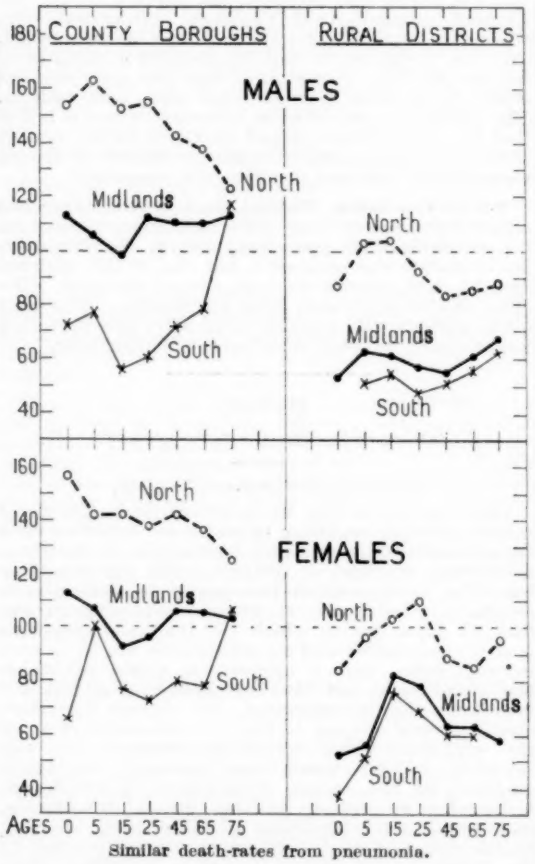
Death-rates from bronchitis showing topographical variations.

County boroughs and rural districts in each of three sections of England—north, midland, and south—are contrasted in each instance for males and females separately. Wales has been omitted from the comparison, but it may be stated broadly that it is only surpassed in its unfavourable mortality by the north of England. It will be seen that in county

[1] The Registrar-General's Statistical Review of England and Wales for the year 1925. Text. H.M. Stationery Office. 5s.

boroughs, both for males and females, the death-rate from bronchitis is much higher in the north than in the midlands, and higher in the midlands than in the south at most ages. The same excess is shown in rural districts in the north, though on an appreciably lower scale. Similar remarks apply to the mortality from pneumonia, with differences in detail which can be best studied in the diagrams.

FIG. 2.



Similar death-rates from pneumonia.

Why should the population in the northern areas, and particularly in urban districts, thus suffer excessively? One naturally thinks of the severe climatic conditions of the north, of its excessive rainfall and humidity, of its deficiency in sunshine, and of its fogs. These might be assumed to apply both in urban and rural districts; but the diagrams show that although rural, like urban, mortality from these diseases is excessive, the rural excess is at a much lower absolute level than the urban. Taking the figures for males the relative death-rates at ages 0–5 in county boroughs in the north and south respectively for bronchitis are as 152 : 84, and in rural districts in the north and south respectively are as 133 : 47. At ages 25–45 the corresponding figures are 172 : 60 and 56 : 26. Similar differences can be traced in the figures for pneumonia. It is clear that climate does not form an adequate explanation of these differences between north and south, nor of the differences in north and south between towns and country districts. That climate does not form an adequate explanation is further indicated, as pointed out in the Registrar-General's report, by the figures which show that the infant diarrhœa rate of the north is more than double that of the south, that of the midlands being intermediate in regard to both diarrhœa and respiratory diseases. Here are the figures for diarrhœa in the north and south respectively:—

		County boroughs.	Rural districts.
Relative death-rates from diarrhœa and enteritis, that of England being stated as 100	North	154	85
	South	63	32

Diarrhœa in large measure, given other equal conditions, is a measure of summer temperature. Yet the north suffers excessively from it. As stated in the Registrar-General's report, simultaneous excesses of 74 per cent. for mortality supposed to be promoted by cold and of over 100 per cent. for mortality known to be promoted by heat cannot both be explained on the score of climate. It is evident that conditions other than climate are not equal; and that in regard to diarrhœa, as in regard to bronchitis and pneumonia, evils exist to an extent which is not equalled in the midlands and still less in the south. What are these? Do industrial occupations explain the difference? If so, the excessive mortality from bronchitis and pneumonia ought to occur chiefly at the working ages of life; whereas the diagrams show that it is great at all ages, and in rural districts is greatest in childhood for bronchitis. That industrial occupations, although doubtless concerned, do not give the chief key to the situation is especially indicated by the differences found between the bronchitic mortality of children under 5 in north and south. In the north this is 152 : 133 for male children in county boroughs and in rural districts respectively; and 68 : 47 in corresponding parts in the south. Here evidently occupational evils are not primarily concerned.

It may be safely stated then that quite irrespective of differences in climate or in occupational conditions there is a terrible excess of bronchitis and pneumonia in northern districts, rural as well as urban, though especially in urban districts. That this difference is not due in the main to unfavourable climate is further shown by the fact that in summer these same northern districts, rural and urban, have an excessive diarrhœal death-rate, although the summer temperature in the north is much less favourable to epidemic diarrhœa than that in the south. There is needed more detailed local analysis both of northern, midland, and Welsh figures, by means of which it would be practicable to bring out possible important differences in the incidence of these diseases. Meanwhile it may be taken as almost axiomatic that all that is involved in the word "sanitation," and in the standard of housing and of life in general, are lower and less satisfactory in the north than in the rest of England; and this general conclusion should cause searchings of heart and serious efforts at generalised reform on the part of public health authorities throughout the crowded industrial and rural districts of the north.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

Official Recognition of "Natural Medicine."

THE parliament of Thuringia has granted the sum of M.100,000 (£5000) as a first instalment towards the construction of a State clinic for natural medicine in Jena. This has led to a protest by the medical faculty of Jena University, in which it is shown that so-called natural medicine is not a special science, and that its methods—so far as they are valuable—are used by the medical profession. The faculty points out that it would be dangerous to patients of the clinic if these methods alone were employed for the treatment of disease, to the exclusion of others which long experience has shown to be useful. Exception is taken to the Government's action in adopting the plan without asking the opinion of the medical faculty of Jena or the medical chamber of Thuringia. The money spent on the new clinic would, it is thought, be more usefully devoted to improvement of the old

university clinics of Jena and to the construction of new houses for which there is urgent need.

Workmen's Insurance in Various Countries.

In the Journal of Industry and Statistics a report is published on workmen's insurance abroad. According to the writer, the longest established insurance is that of Germany where a sickness insurance Act was passed in 1883, an accident insurance Act in 1883, and an Act for insurance against old age and invalidity in 1911. In Germany 32 per cent. of the population are insured, in Great Britain 35 per cent., in Austria 25, in Norway 21, in Czechoslovakia 16, in Poland and Russia 6, in Jugoslavia 4. In Luxemburg, Rumania, Latvia, Japan, and Greece insurance covers only industrial workmen, leaving out other classes of the working population. Certain countries have only voluntary insurance against sickness, assistance being given by the State. These include Belgium, where 8 per cent. of the population are insured in this way, Denmark with 4 per cent., Finland with 18, France with 7, Sweden with 12, and Switzerland with 23. There is no State insurance of any kind in the United States of America.

Public Health in Russia.

The Society for the Study of Eastern Europe recently arranged a series of lectures by Russian savants in Berlin. Their leader was Prof. Semachko, Commissary of Health of the Union of Soviet Republics, and he gave an address on the Institute of Social Hygiene and its work. By the introduction of compulsory vaccination five years ago the amount of small-pox had, he said, been considerably reduced, whilst cholera and enteric had also become less common of late years. The general mortality had fallen from 27·3 per 1000 in 1913 to 23·7 in 1925. The number of births had not decreased, notwithstanding the liberal law on artificial abortion, and was almost the same in 1924 as in 1913. The annual increment of population had risen from 16·5 in 1903 to 21·5 in 1925.

Death of Prof. Fritsch.

The death has occurred, at the age of 90, of Prof. Gustav Fritsch, a pioneer in the physiology of the brain. As early as 1870 he discovered, with the late Prof. Hitzig, that the cerebral cortex could be excited by the faradic current, a fact upon which the localisation of the motor centres was based. His scientific interests were from the beginning very wide. Shortly after qualifying in 1863 he went for three years to South Africa on an ethnographical survey of which he published a description. Soon afterwards he went to Aden on an expedition to observe an eclipse, and thence travelled into upper Egypt upon anthropological and ethnographical pursuits. After his return he made studies on the anatomy of the diatoms and on electric fishes, and was appointed head of the department of biology and microscopy at the newly founded institute of physiology at Berlin University. His last work was on the comparative anatomy of the retina in the different human races, and was the result of travels which had led him to America, Eastern Asia, the Southern Seas, and Australia. In spite of great difficulties he managed to test the vision of many natives and to secure for microscopical examination specimens of the retinæ of those who had just died. He discovered that the acuity of vision of Europeans was on an average much lower than that of the natives of Java, India, and Mongolia, and that this fact was connected with the structure of the fovea centralis.

Health Week.

Last year's Health Week was so successful that it has been repeated. This time the propaganda was chiefly done in rural districts, and the campaign's main object was the destruction of vermin in its relation to stables, dwellings, and food. Each district formed a committee under the presidency of the district medical officer of health, the members including medical men, teachers, clergymen, and officials of sick-clubs. Pamphlets and picture post-cards were distributed in schools, and lectures were delivered by the teachers. The clergy were asked to allude to Health Week in their sermons; in chemists' shops the means of destroying vermin were exhibited, whilst broadcasting stations and the local press exerted their influence for the success of the campaign.

A well-known French scientific man is trying to ascertain the name of an officer of the German Army Medical Corps who attended his parents during the German occupation of Vendresse (Ardennes). He wishes to thank him for the care and skill exercised, and has, therefore, invited the German medical press to give publicity to a request that the army medical officer in question may give his name and address. His action is appreciated in Germany, where it is felt that the work of members of the Corps for the benefit of the French population during the absence of French medical men has been insufficiently recognised.

Before the Berlin Medical Society Dr. Meyer has reported two recent cases of Trendelenburg's operation for embolism of the pulmonary artery. In both cases the operation was successful, but one of the patients died 25 days afterwards from a fresh embolus. The other is still alive now after six months. The only other patient who remains alive after the operation was operated by Prof. Kirschner, of Königsberg.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Evolution of the Spirochæte.

LEVADITI states that the popliteal lymph glands of rabbits bearing syphilitic chancres are infective even though devoid of spirochætes discoverable by the ultramicroscope in films or sections. His investigations lead him to distinguish two phases in these glands —viz., a pre-spirochætal phase, developing in the first 45 days, during which the lymphoid structure is still recognisable and no spirochætes are to be seen in any form, and a spirochætal phase in which the gland takes on the appearance of a primary syphiloma rich in organisms. He regards the spirochæte as only a stage in the developmental cycle of the syphilitic virus, which later passes into the invisible or very small form occurring in lymph glands. In the region of syphilomata which are undergoing resorption he has found spirochætes, included in the cytoplasm of fibroblasts, showing all the stages of an involutionary process tending to the formation of almost invisible granules. This conception of changing form is invoked to explain (1) latent syphilitic infection with the presence of a virus in certain tissues not containing spirochætes; (2) cases of general paralysis of the insane or tabes occurring without demonstrable spirochætes in the nervous system; and (3) relapses coming on in spite of treatment, the resting forms being, he thinks, more refractory to chemotherapeutic agents than the spirochætal vegetative forms.

Yellow Fever and Bismuth.

The action of bismuth upon *Leptospira icteroides* (regarded by Noguchi and others as the infecting agent in yellow fever) has recently been studied by Sazerac, Hosaya, and Stephanopoulo. They find that tartrobismuthate of sodium has a curative and prophylactic action in guinea-pigs infected by the spirochæte, and this seems to be identical with the action of the same compound on *Spirochæta icterohæmorrhagiæ*. Other research has shown that there is a close analogy between the two organisms, and perhaps these investigations may lead to yellow fever being treated with derivatives of bismuth.

Application of Ultra-violet Rays.

The local use of ultra-violet rays is often hindered by the difficulty of bringing the end of the applicator, which consists of a rod of rigid quartz, into close

relation with the lesion. Dejust has devised a modification in which the rod consists of segments kept in touch with one another, the whole forming a chain which can be bent at will. Investigation of the new device at the Optical Institute shows that visible and ultra-violet rays pass along the chain, and it is claimed that it will allow irradiation of regions of the body which have hitherto been inaccessible.

Leprosy in French Guiana.

Labernadie reports 300 cases of leprosy at Cayenne, whose population is about 12,000. Among the 30,000 inhabitants of French Guiana there are, he says, 800 or 900 lepers. Contagion occurs mainly by contact in the home, at schools, or in prisons. Prolonged and intimate contact is necessary for infection, and it takes six or seven years for the disease to develop among convicts.

Sabrazès, of Bordeaux, has observed that chicken-pox, like small-pox and vaccinia, is sometimes complicated by epididymo-orchitis. This is hardly surprising if, as is supposed, the three diseases are related.

The term "verdunisation" has just been coined in France to designate the method of sterilising drinking water by hypochlorite. The name has its origin in the successful use of the method at Verdun during the late war.

The Fifth Congress of French-speaking Pediatrists will be held at Lausanne on Sept. 29th and 30th and Oct. 1st, and the Fifth Congress of French-speaking Gynæcologists and Obstetricians will be held at Lyons on the same dates. Information about the latter may be had from Mr. Voron, 12, Quai Tilsitt, Lyon.

A course on Diseases of the Digestive Tract is to be held at the Hôtel Dieu, Paris, under the direction of Prof. M. Villaret, from Sept. 12th to 23rd. Particulars are obtainable from the secretariat of the Faculty of Medicine.

MEDICINE AND THE LAW.

Death Accelerated by Ether.

AT an inquest held at the City Coroner's Court on July 29th on the body of a woman of 27 years, who died during the removal of a lobe of the thyroid gland, it was stated that gas, oxygen and ether were at first given by Boyle's apparatus, chloroform being substituted when ether clonus developed. An injection of hyoscine had been given on the previous day. The anæsthetist giving evidence said that of the two brands of ether in use at the hospital both were certified by the manufacturers to be pure, and as an extra precaution both had been sent for analysis to the Medical Research Council, which confirmed the purity with the exception of a "faint trace of deleterious chemical material" in one of them. The woman, it seems, had developed dangerous symptoms a year previously when under the influence of ether for the similar removal of a thyroid lobe. Sir Bernard Spilsbury reported that death was due to fatty degeneration of heart muscle (verified microscopically) consequent upon exophthalmic goitre and accelerated by ether given as an anæsthetic. The anæsthetist and the house surgeon agreed with him as to the cause of death. The coroner, in summing up, remarked that this was the first time in which a suggestion made in his annual report for 1926 had been taken—namely, that all anæsthetic ether should be analysed and certified as pure before use and kept after delivery in light-proof amber-coloured bottles. This had been done in the present case. A verdict of death from misadventure, the ether having been carefully and skilfully administered for a necessary operation, was recorded.

The Meaning of "Drunk."

While medico-legal experts continue to examine the tests of drunkenness, magistrates and juries from time to time apply some criterion of their own and reach decisions unassisted by any definition. Section 40 of the Criminal Justice Act of 1925 made it an offence to be "drunk while in charge on any highway or other public place of any mechanically propelled vehicle." At the recent Quarter Sessions for the county of Worcestershire, when a charge of this nature was being investigated, the chairman seems to have told the jury that, if a man had taken alcohol and was thereby rendered unfit to drive a motor-car, he was drunk "for the purposes of the present case." After this summing-up the jury evolved the following verdict: "Guilty of being incapable of driving a motor-car brought about by alcohol, but he was not drunk; he was not drunk to the extent which we should call a drunken man." The chairman took this to be a verdict of "Guilty," and proceeded to sentence the accused to one month's imprisonment in the second division. The Court of Criminal Appeal, however, has quashed the conviction. No amount of argument or ingenuity, said the Lord Chief Justice, was capable of getting rid of the fact that the jury said the man was not drunk. Drunkenness was a necessary ingredient of the offence; the verdict meant that that ingredient was absent. The chairman at Quarter Sessions had suggested that the word "drunk" should be defined in a particular way; the suggestion might deserve the attention of Parliament, but meanwhile this conviction could not stand. No definition or interpretation from the bench could turn "not drunk" into "drunk." Not long ago Mr. Justice McCardie was remarking that persons were certified insane without any definition of insanity. Evidently the law is content to rely upon the common meaning of words intuitively used and applied by jurymen. Thus the question "Was the accused drunk?" can be sufficiently answered "He was not drunk, not to the extent which we should call a drunken man."

Exorcising Evil Spirits.

The Allahabad correspondent of the *Times* reports an unusual defence to an accusation of murder. The accused, after having suffered for three months from dysentery, had consulted an exorciser of evil spirits, who assured him that his illness was due to a spell cast over him by a man named Hubba, who was under the influence of evil spirits. The accused thereupon killed Hubba with an iron-shod staff. This form of self-defence not being recognised by the criminal law, the accused was found guilty. The sessions judge is reported to have expressed reluctance to inflict the death penalty as the accused was virtually mad to think he could expel the evil spirits from the dead man by striking him with his staff. A sentence of transportation for life was imposed instead. Elements of demonology and witchcraft in criminal proceedings are by no means confined to India. A few years ago a court of appeal in East Africa quashed the conviction of a man accused of injuring his neighbour by putting upon him the evil eye. And even more recently a bench of magistrates in Devonshire was asked to accept a similar story.

CORRIGENDUM.—In the discussion on cerebellar function at the meeting in London of British and American neurologists (THE LANCET, August 6th, p. 302) we regret that Dr. F. M. R. Walshe's remarks are incorrectly reported. What he did say was that cerebellar ataxy was a phenomenon of voluntary movement, and was not present in the reflex movements of the thalamus animal without a cerebellum, and that Holmes had shown that the cerebellum had *no* sensory functions.

OLDHAM ROYAL INFIRMARY.—The Nook, Greenfield, has been opened as an auxiliary to the Oldham Royal Infirmary. Situated at the foot of Alphin Pike, one of the highest peaks of the Pennines, and splendidly equipped, the new hospital has been established by the generosity of the late Mr. J. L. Hargreaves.

Public Health Services.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

THE following are some 1926 statistics for five county boroughs and one borough :—

Name of district and mid-year population.	Birth-rate.	Death-rates per 1000 of the population.					Death-rates per 1000 births.		
		All causes.	Tuberculosis.	Cancer.	Resp. diseases with influenza.	Heart disease.	Diarrhœa under 2 years	Infant mortality.	Maternal mort. from childbirth.
West Ham .. (315,900)	21·2	10·7	1·14	1·24	2·2	1·4	13·9	62	1·9
Blackburn .. (124,400)	14·0	12·9	0·93	1·33	2·8	1·6	5·2	89	8·0
Northampton.. (93,530)	14·0	11·4	1·11	1·27	1·9	1·4	3·8	55	6·9
Lincoln .. .. (65,760)	16·5	12·3	0·97	1·41	2·4	1·5	4·6	79	8·2
Eastbourne .. (56,060)	12·9	10·7	0·87	1·87	1·3	2·0	2·7	43	8·2
Colchester .. (44,780)	16·1	10·6	0·91	1·42	1·5	1·5	6·2	64	5·0

West Ham.

Dr. F. Garland Collins reports that in September a whole-time assistant was appointed mainly for maternity and child welfare work. An antenatal clinic has been started at the Silvertown centre and a new centre has been opened in West Ham-lane, where both antenatal and postnatal clinics are in operation. The work of the health visitors has been reorganised and an arrangement made with the Plaistow maternity charity to prevent overlapping and to promote coördination. Home helps are employed by the council, and work under the direct supervision of the health visitors. A list of approved women is kept at the town hall, and each home help is required to give prompt notice when she has undertaken a case. During 1926 there were 1453 applications for home helps and 1261 of these were granted. During the last four years about 100 tons per annum of dried milk has been supplied at cost price for the benefit of nursing and expectant mothers and children under 3. The milk is received in hermetically sealed canisters and packed daily in cartons, in order to make sure that it is in good condition. The Plaistow isolation hospital has been made available for cases of puerperal fever, but it is found that most of the cases are sent into voluntary institutions. So far the existing nursing associations have provided the nursing required, and it has not been necessary to appoint a municipal nurse. A panel of three consultants has been formed so that the notifying practitioner may have a choice of specialist when a second opinion is desired. A sanatorium for children suffering from pulmonary tuberculosis, with accommodation for 40, is now being built on the council's site at Langdon Hills. This will meet a long-felt want.

There is much flagrant overcrowding. No houses were built with State assistance during the year, but the council are at present erecting blocks of flats, four storeys high, capable of accommodating 152 families. It not infrequently happens, says Dr. Collins, that a tenant renting three rooms from a landlord will sublet two of them to two separate families. If there is only one w.c. much bitter feeling arises between the tenants owing to the ground floor kitchen being converted into a thoroughfare to the backyard.

During Health Week about 35,000 persons visited the exhibitions. Dr. Collins emphasises the importance of selecting lecturers who know something of the neighbourhood, and will thus avoid putting forward impracticable suggestions. He also stresses the danger of these exhibitions being exploited by rival firms. The babel which ensues often tends to minimise the true purpose of the exhibition. He suggests an interval of more than one year between health weeks ; the best form of health propaganda, he considers, is steady persistent teaching in the schools and churches and through the press and in the homes and haunts of the people. The residential open-air school for 80 boys established at Fyfield has been at work for two years without a single case of infectious disease or any serious illness ; it also kept free from the epidemic of influenza which affected the borough towards the end of the year. Seven nurses at the isolation hospital contracted scarlet fever and eight diphtheria. All new probationers are now tested and, if necessary, immunised against these diseases. The results of Dick tests on scarlet fever cases were as follows : 66 of 71 patients tested in the first five days of the illness were positive ; 48 of 87 tested on the seventh day were positive ; 57 of 160 tested in the second week were positive ; and 57 were retested at weekly intervals. All had become negative by the end of the sixth week except seven, who were positive on discharge from hospital.

Blackburn.

Dr. Oscar M. Holden tells us that Blackburn in 1926 had the highest total rainfall of any large town in England, nearly 41 inches. The hours of bright sunshine totalled 1114, which might be compared with the 1211¼ registered at Lytham. The chief industry is cotton-weaving and its subsidiary branches. Normally 748 of every 1000 women and 280 of every 1000 men are textile workers, but the year has been one of depressed industrial conditions with much unemployment. The respiratory group of diseases bulks largely in the death returns, and Dr. Holden suggests that unfavourable climatic conditions, coupled with a dirty atmosphere, are the predominant causes. He suggests a connexion between the decline in these diseases and the cleaner atmosphere during the coal strike of last year. Respiratory diseases are markedly more prevalent among the cotton operatives. Spinners and unclassified operatives show the most unfavourable figures. Winders and warpers are better placed. Female weavers apparently come off better than male.

About 50 per cent. of the babies born are exempted from vaccination. A small outbreak of small-pox of a mild type gave rise to eight cases in the Queen's Park Institution. It was attributed to an undetected case in a vagrant. A small open-air school, providing beds for 20 delicate children, is carried on in one of the original scarlet fever pavilions at the open-air hospital. Ultra-violet light apparatus is also provided at the hospital for the benefit of the maternity and child welfare, tuberculosis, and school departments. Dr. Holden thinks that the practice of allowing two visitors twice a week to see the diphtheria and scarlet fever patients is a mistake. Apart from the window-cleaning business, managed by the Charity Organisation Society for ex-sanatorium cases, there is no system of after-care for consumptives, and Dr. Holden thinks such a system is greatly needed. The arrangements at the hospital for tuberculous patients need considerable improvement. There is no dining-hall or recreation-room, all the meals being taken in the ward. The records show that of the patients treated at the corporation hospital and discharged since 1913, 13·4 per cent. are at full work with no symptoms and 5·2 per cent. at full work but with difficulty. The corresponding figures for the patients sent for treatment to Meathop Sanatorium are 19·0 per cent. and 6·8 per cent. respectively.

The antenatal clinic has two sessions in the week, and was attended by 480 prospective mothers. Dr. Holden complains that although 80 per cent. of the confinements are attended by midwives the number of cases sent by them to the clinic was only 59. The municipal maternity home has accommodation for 20 cases, and the medical officer of health is empowered to remit the minimum fee of £1 11*s.* 6*d.* per week in

cases of proved necessity. The patients admitted numbered 212, being 39 fewer than last year. Each member of the staff is a fully-trained nurse as well as a qualified midwife. Dr. Holden would have liked to see more use made of the beds, and it is surprising that hospital treatment is not sought more often, seeing that in 1926 27·3 per cent. of the confinements in private houses took place in the kitchen or living-room. The number of stillbirths in 1926 was 4·8 per cent. of the number of live births. The neonatal mortality was 45·8 per 1000. There were 19 cases of ophthalmia neonatorum and one baby totally blinded. A census taken in March, 1926, did not reveal any shortage of houses, which is not surprising when it is seen what a small difference there has been between the birth-rate and death-rate in Blackburn of late years. Individual cases of overcrowding met with were due either to bad distribution of the family in the rooms or to subletting.

Northampton.

Dr. Stephen Rowland, formerly tuberculosis officer, only took up his duties as medical officer of health in December after the death of Dr. J. D. McCrindle. Bacterial examination of the town's water as a rule revealed a high degree of purity, but occasionally this standard was not maintained. The Monarch-road tip, which was a source of complaint in 1925, caused further complaints in 1926 owing to the invasion of neighbouring houses by crickets bred on the tip. The tip is now disused and a comprehensive scheme is in preparation for the collection and disposal of house refuse by modern appliances. Five samples of milk taken from one farm were reported by the analyst to contain added water varying from 7 per cent. to 19·3 per cent. The farmer successfully prosecuted a servant for adding the water and the summons against himself was withdrawn. In the case of a sample alleged to contain 7 per cent. of added water the magistrates were satisfied that the milk was sold as it came from the cow.

A sudden outbreak of scarlet fever occurred in the beginning of November after a period of almost complete freedom from this disease. It was found that nine of the first patients had their milk from three retailers, but that these three obtained the milk from one wholesaler, who in his turn obtained it from a farm outside the borough. A milker was found at the farm who had been away ill for 12 days in the second half of October. He exhibited, however, no signs of scarlet fever after repeated examinations, and his medical attendant had seen no signs or symptoms of scarlet fever during his illness. He was excluded from work and the milk was pasteurised. Within three days of the pasteurisation there was a sudden drop in the notifications. There were about 100 cases in the borough and neighbourhood, which were evidently due to the infected milk; but, as often happens in scarlet-fever-milk epidemics, it was impossible to show how the milk had become infected.

Lincoln.

Dr. H. Gordon Smith thinks the existing unemployment can hardly fail to affect the health of the community. In dealing with the condition of the children attending the centre he points out that 80 (or 2·9 per cent.) suffered from marked rickets, while 244 suffered from respiratory complaints, 148 from gastro-intestinal disorders, and 82 from debility. 141 out of 838 infants were bottle-fed at the time of the first visit of the health visitor, apparently because the mothers often were not in a fit state to nurse them. Many men have been unemployed for years, others are working part time and the weekly wage is often less than £2. In the family dietary white bread is prominent, and potatoes, margarine, sugar, and tea are well to the fore. Meat is not a big item, and milk may average a pint per day for everybody. The ex-baby, therefore, "will probably receive at home filling starchy food, just the sort to give it rickets." The milk and other foods supplied by the maternity and child welfare committee prevents things from being worse than they are. Of the 86 infant deaths 27 occurred in the first week and 46 in the first four weeks (a neonatal mortality of 42). Of the eight midwives three are municipal. The city maternity home provided for 260 confinements in the home and for 428 through the district service, the total births during the year being 1089. Sixteen antenatal cases and two postnatal cases were also admitted to the home. Thirty-two babies born in the home were not entirely breast-fed while in the institution; nine because the mother was returning to work, two because the milk was unsuitable, and 12 because there was insufficient secretion of milk. Of the 17 stillbirths in the home two were due to breech delivery and three to placenta prævia. The attendance at all the centres and clinics is increasing, and more centres and more sessions are needed in order to do justice to the work. Dr. Smith complains of the pollution of the rivers by houseboats and by lazy people throwing in refuse, making the water impossible for bathing purposes. The veterinary surgeon began his inspection of the milch cows on Nov. 1st, and in two months found two tuberculous udders among 90 cows.

A block of ten cubicles is to be provided at the isolation hospital, and will greatly increase its efficiency for dealing with a larger variety of diseases and with mixed infections. There were 17 cases of encephalitis lethargica during the year with five deaths, and eight cases of anterior poliomyelitis with two deaths.

Eastbourne.

Dr. W. G. Willoughby tells us that the infant mortality-rate was the lowest of any of the large towns of the country with the exception of some London suburbs, and that the hours of bright sunshine (1659·1) were the eighth highest recorded for the United Kingdom. The most welcome feature of the year was a larger addition to the housing accommodation. There are still a number of families lacking proper accommodation—the number is estimated at 472—but at the end of 1926 there were 254 houses in course of construction or planned, leaving a deficiency of 218. A house-to-house inquiry now in progress will verify the last-named figures. The army huts, which were occupied in May, 1919, are being gradually closed. Originally there were 188 tenements, but at the close of 1926 only 70 were occupied. The maternity home dealt with more cases than in any previous year. There were 189 confinements and 191 children born, of whom four died and eight were stillborn. There were two maternal deaths; one patient was admitted moribund from puerperal eclampsia and the other died of peritonitis after Cæsarean section. Five of the infants were not entirely breast-fed, one owing to insufficient milk and another owing to blood in the milk secreted. In one case the mother had chronic nephritis, in another phthisis, and the fifth infant was going to a foster-mother. The antenatal clinic at the home was attended by 198 expectant mothers, and the other antenatal clinic by 17 (total 215, the births for the year being 727). The six deaths from childbirth were due to puerperal fever, eclampsia, perinephric abscess, peritonitis after operation, and embolism (2). The one day-nursery in the borough was permanently closed in March, 1926. The only patient with verified encephalitis lethargica died; the only patient with acute poliomyelitis, an infant of 39 days, recovered.

Colchester.

Dr. W. F. Corfield says that an unsuccessful endeavour has been made to secure accommodation for maternity cases by taking a building from the guardians, to which separate access could have been made. Negotiations are now in progress to obtain this accommodation through the District Nursing Association. An arrangement has been made for infants suffering from a crippling defect to be attended by the specialist at the orthopædic clinic of the education committee. During the year four cases of rickets, four of congenital deformities, and one of paralysis were so treated. The schemes for the conversion of privies and pail-closets, for the provision of a water-supply for hand-flushed closets, and for the

substitution of sanitary bins for ash-pits continue to make progress. 266 houses were erected with State assistance, 98 being municipal. The housing position is getting a little easier, and notices of houses to let are beginning to appear. For the last three years the nurses at the isolation hospital have been immunised against diphtheria and there have been no cases of the disease among them. During the year the patients and staff of the Royal Eastern Counties Institution for the Mentally Defective were immunised. The "positive" patients dealt with numbered 248 out of 1037, and the "positive" members of the staff numbered 47. No bad arms followed the tests, and only three persons had a moderately severe reaction. Dr. Corfield complains that infectious cases received into the Essex County hospital from outside districts and notified from there are counted as Colchester cases. All of the five cases of encephalitis lethargica and 11 of the 58 notifications of pneumonia were of this description.

REPORTS OF SCHOOL MEDICAL OFFICERS.

Name of district.	No. on roll.	Average elementary school attendance.	No. of routine children examined.	No. of special examinations and re-inspections.	Percentage of children found on routine examination requiring treatment.†
Edmonton..	13,462	—*	3,567	15,011	22·3
Norfolk C.C.	44,615	—*	14,225	12,052	14·67
Colchester..	5,872	5,201	1,852	2,741	21·0

* Not given. † Excluding dental defects and uncleanliness.

Edmonton.

Dr. H. W. Harding describes the increase in facilities for treatment at Edmonton during 1926 and wonders if a time will come when there will be nothing fresh to chronicle. Later in the report he indicates that future preventive and curative measures will be directed towards the pre-school child. The new orthopædic clinic was opened in March and the massage and remedial clinic in April. Treatment of otorrhœa by ionisation is now employed and a class for stammerers has been started. Attention is called to the need for drying-rooms for wet boots and clothes and for the supply of slippers; the lack of them causes much invalidity among school-children. In spite of the trade depression of 1926 the condition of the children compared favourably with that of the previous year. Although there is no special school for cripples, the exceptional children are well provided for; a special class is held for partially blind and myopic; the deaf and dumb are sent by tram to a special school at Tottenham, and the feeble-minded attend the special school under the joint committee of Enfield and Edmonton. Dr. Harding argues that special day schools for mentally defective children should be abolished and special classes should be started in the elementary schools for dull and backward, borderline, and feeble-minded children. Much can be said for the establishment of classes for the dull and backward in the ordinary schools, but mental defectives often become the butt of their normal fellows, and recognising their inferiority they sometimes react by antisocial behaviour, and many children who show early antisocial signs will develop into self-helping amenable citizens when put to work which they can do and which interests them. To exclude these children from school, notifying them to the authority under the Mental Deficiency Act, is merely to shift responsibility often to the detriment of the child since institutional accommodation is quite inadequate.

Norfolk.

Coördination of the various health activities is now well established, and during the year many alterations of, and additions to, the schools have been effected. The difficulty of providing efficient treatment in a large scattered area is well met in Norfolk by six clinics in the larger villages, their work being supplemented by the issue of vouchers for attendance by approved practitioners and consultants and by arrangements with some of the local hospitals. Cases requiring to be nursed are attended by the local nurse and after-care is given by voluntary workers. Motor vans are used as mobile dental clinics. Physical training is now part of the routine in all schools, and it is reported that all children take part in the organised games and exercises. The orthopædic scheme is now maturing, and Mr. M. W. Bulman has been appointed part-time orthopædic surgeon. The close coöperation existing between the school medical service and practitioners in Norfolk is shown by the record of 49 cases of parenchymatous goitre treated by thyroid medication under the joint supervision of the school medical officer and local practitioners. This is excellent, for success in preventive and curative measures depends on the interest and active assistance of all medical men. Dr. J. T. C. Nash, the school medical officer, associates the decrease in the mortality from tuberculosis with the rising standard of national nutrition, and advocates the giving of milk to selected under-nourished school-children.

Colchester.

Dr. W. F. Corfield reports that although there are no blind children, there are 15 partially blind, for whom there is a special class. Educable mental defectives are adequately provided for in a day school and in a residential school forming part of the Royal Eastern Counties Institution. There are 31 ineducable children, of whom 11 are in the Royal Eastern Counties Institution, whilst the rest live at home. Dr. Corfield deplores the lack of accommodation for them; in many cases it means, he says, that one of the parents is tied to the house and sometimes younger children are scared or imitate the bad habits of the defective. The occupation centre is often a partial solution of the difficulty of dealing with imbeciles. On the future of the ex-pupils of the special school for mental defectives a candid—almost a pessimistic—report is given, showing that only 17 out of 61 are at work. The figures are thought to suggest that the standard of intelligence for admission to the school is on the low side. There is no open-air school in the borough, nor a school for cripples, of whom 85 are mentioned, but the list includes defects such as cleft-palate and facial paralysis. The report of the organiser of physical training is included in the annual report, and we should like to see this generally done.

MENTAL HOSPITAL REPORTS.

THE *Cheshire County Hospital* at Macclesfield had 1311 patients on its books at the end of last year, 21 in excess of the normal accommodation, so that the question of providing more room has already become acute. The shortage is on the male side. Of the 224 admissions during the year, 101 were classed as hopeless. Nevertheless, there was a recovery-rate of 28·1 per cent., well above the average for the previous quarter century, and the death-rate was also one of the lowest on record—6·1 per cent. Post-mortem examinations were made on nearly 90 per cent. of the fatal cases. Four of the deaths were due to typhoid fever, which attacked 32 patients. It arose, apparently, through the infection of a nurse by an old typhoid carrier, whose habits were very dirty. Water from the villa in which the nurse was lying ill was drunk by patients on the cricket field, and the infection was spread further by old aluminium utensils which had got too battered to be readily kept clean. The water-supply was, of course, investigated thoroughly, and a defective tank was found and put right. Further alterations are desirable, the superintendent thinks, to put the whole supply above suspicion. Otherwise the general health was good. A "Vitaglass" hammock has been erected and

others are to be supplied; many patients have been treated by ultra-violet rays. Some nurses volunteered for an experiment on the part played by cool air in light therapy. Those who had exposure to light gained in weight, and there was an increase in blood pressure and in the leucocyte count and colour-index. Those who had cool air treatment only did not show these changes; indeed, the leucocytes were diminished, while the red cells increased. Both sets, however, experienced tonic effects, increase of appetite and sleep, and a slight increase in basal metabolism. Small rooms are to be set apart as clinical rooms; club wards and open-door wards are in practice, and many patients have full parole or parole within the grounds. Out of eight cases of general paralysis treated with malaria, four were subsequently discharged and continue well. Two others improved considerably. Hyoscine treatment for post-encephalitic cases is the subject of a special note; the results were not very gratifying. Other research work carried on includes an investigation into the psychological origin of schizophrenia, manic-depressive psychosis, and paranoia; a great deal of routine and blood culture work has been done in the laboratory. In the occupation department 64 women were taught handicrafts and 16 men were employed in brush-making, in upholstery, and in boot-repairing. Twelve nurses and three attendants obtained their diploma and 26 more passed the preliminary examination of the Medico-Psychological Association. This brings the total of certificated female nurses up to 42 per cent., a figure which the superintendent believes to be a record. A nurses' lecture-room has been equipped with models, lantern, and epidiascope. It is gratifying to learn that the standard of probationers continues to improve. New tennis and badminton courts have been made.

The *County and City of Worcester Mental Hospital* at Powick houses 1129 patients and has about 130 vacancies. The recovery-rate for the year was 28·1 per cent., and the death-rate 6·4 per cent., with an autopsy percentage of 56·2. The general health was good, except for three cases of enteric, the origin of which was not traced. Plans have been approved for the erection of a verandah for male tuberculous patients; this will be a great advantage, as at the present these men have to be nursed in the infirmary ward. A dentist has been appointed to visit the hospital fortnightly, and a small laboratory has been fitted up. The lack of electric current makes it impossible to employ certain modern aids to institutional work—a cinematograph, kitchen devices, and so on. The farm showed a profit last year of nearly £700.

The *Middlesbrough Borough Mental Hospital* houses 476 patients, an increase of 24. The recovery-rate was 39·6 per cent. and the death-rate 8·7 per cent. Sixty-six per cent. of the patients were kept usefully employed, and day or week-end leave and parole were granted wherever possible. The general health in 1926 was good. There were only half a dozen cases of tuberculosis. Operations for hernia and pyloric stricture were performed by the visiting surgeons. The Visiting Commissioner, remarking that "there is a manifest desire here to progress on modern lines," notes the excellent arrangements for electrical and "light" treatment, and urges provision for separate treatment of recent and presumably recoverable cases, and of out-patient treatment. He comments on the fact that 77 per cent. of the direct admissions came from the Poor-law institution instead of straight from their homes, suggesting that this means of certification is too often resorted to. Seventeen male attendants and two nurses are certificated and 11 have passed their preliminary examination.

MENTAL DEFECTIVES.

The *Royal Eastern Counties Institution* for the mentally defective at Colchester issues its sixty-eighth annual report for 1926, illustrated by excellent photographs of the buildings, games, and theatrical groups. The accommodation for 1120 patients is nearly all occupied, and there is urgent need for extension. Plans have been approved for some enlargement, but progress is slow. The general health and nutrition was good and there were only four cases of tuberculosis. Day service and living-in service have been continued, the chief development during the year was the increasing use of foster-mothers for quiet, well-behaved cases. The children go out on long leave of absence; this is preferable to putting them out under guardianship, because if anything happens, either to patient or foster-mother, the former can be brought back to the institution at a moment's notice. The medical superintendent finds from experience that, for the great majority of defectives, life in an institution is happier and more successful than any other scheme. Daily service is better, too, than boarding-out. Once a beginning of liberty is made, the defective generally thinks all restrictions are gone, and parents or employers will not enforce the terms of licence. The superintendent confesses to a considerable degree of pessimism about the possibility of getting the higher-grade cases back into the world. The only high-grade cases that ever come into an institution are those which have failed many times to adapt to an outside environment, and will fail again. The only class he sends out without misgiving is the quiet, well-behaved medium grade who is mentally a child and content to live for always as a child, under a good foster-mother. The school girl guide company had a fortnight's summer camp at Langham Hall and have taken 133 second-class and proficiency badges. The scout troop came out fifth in the ambulance competition for Colchester scouts. The patients make every article of clothing, every bit of furniture, every brush, mat, or basket needed by the institution, as well as selling products outside. More orders would be welcomed, but it is gratifying to learn that the coal strike did not produce the drop in income that might have been anticipated. As diphtheria had given a good deal of trouble for some years previously, the Schick test was tried on all those whose guardians gave consent. All the positive cases were immunised and there has been no more diphtheria. There were no mishaps among all the 1084 persons dealt with. There was a mild epidemic of influenza during the year and two patients died, but the tuberculosis death-rate was only 0·81 per cent. Epileptics were treated with luminal; the conclusion was that it helped to modify the attacks while not curing the patient.

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED JULY 30TH, 1927.

Notifications.—The following cases of infectious disease were notified during the week:—Small-pox, 185 (last week 195); scarlet fever, 1623; diphtheria, 801; enteric fever, 78; pneumonia, 562; puerperal fever, 45; puerperal pyrexia, 97; cerebro-spinal fever, 7; acute poliomyelitis, 20; acute polio-encephalitis, 1; encephalitis lethargica, 23; dysentery, 3; ophthalmia neonatorum, 93. There was no case of cholera, plague, or typhus fever notified during the week.

Deaths.—In the aggregate of great towns, including London, there was no death from small-pox, 1 (0) from enteric fever, 25 (2) from measles, 9 (1) from scarlet fever, 12 (1) from whooping-cough, 21 (4) from diphtheria, 68 (8) from diarrhœa and enteritis under two years, and 15 (2) from influenza. The figures in parentheses are those for London itself.

Registration of Stillbirths.—Under the Birth and Death Registration Act, 1926, which came into force on July 1st last, 980 stillbirths were registered up to the 30th of the month in the great towns of England and Wales, including 171 registered in London, giving a weekly average of 229 and 40 respectively.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

SCOTTISH BOARD OF HEALTH.

ON Thursday, July 21st, the House went into Committee of Supply on the Civil Service Estimates for 1927, Captain FITZROY, Deputy Chairman of Committees, in the chair.

Housing Conditions in Scotland.

On a vote of £2,387,155 for the salaries and expenses of the Scottish Board of Health,

Mr. MACPHERSON said he had read with pain that part of the report of the Scottish Board of Health which referred to housing conditions in Glasgow. He had never read a more pathetic or terrible description of housing conditions than was contained in that report. It had aroused great feeling in Scotland, and he would be glad to hear from the Secretary of State for Scotland that something was being done to remedy conditions which were a disgrace to the twentieth century. The condition of rural housing in Scotland was also a very serious one. It was not so much that new houses were needed—though that was a very essential thing—as that they needed the old houses to be repaired. He thought that the Secretary of State for Scotland should take every step in his power to explain to local authorities what powers they had under the new Act which was recently passed. He would like also to refer to the part of the report which dealt with the special Highlands and Islands Medical Service Fund. During the passing of the Insurance Act there was a provision made for the special conditions in the Highlands and Islands of Scotland, and it was right to state that the Scottish Board of Health had been very active with regard to that part of the country. A great deal of good had been done, and the fund generally had been of very great assistance in those remote parts. The fund was still at the pre-war figure of £42,000, and the Board of Health did not think that they would be able to cope with any new scheme unless and until there was a reconstitution of the fund. They confessed quite openly on page 180 of the report as follows:—

"In the meantime, until the fund is reconstituted, the assistance granted from it must be restricted to the services already in being, notwithstanding that the time seems ripe for a scheme of development in the Highlands and Islands and for the introduction of a system of specialised services, for both of which there is great need in this part of the country."

He need not tell the Committee how essential it was to have a first-class local hospital in the various parts of Scotland. At the present time they had at Dingwall the Royal Memorial Hospital, and they were busy rebuilding and extending one of the finest institutions in the country—the infirmary at Inverness. He did not know whether the Board of Health had taken, so far, any interest in these hospitals; though he believed they had realised the importance of having efficient local hospitals in the various parts of Scotland. They also wisely recognised that it was necessary to have specialised services. Nobody knew what a hero the ordinary Highland doctor was. In the wildest storm, over bad roads, sometimes over arms of the sea, he went at all hours of the day and night, very often for a miserable fee, to attend to the poorest people in the land, and he, for one, would be glad to see any betterment of the conditions of the Highland doctor's service. It was far too much to expect a single individual to be responsible for the welfare and the health of an entire community without some such assistance as could be given to him from a hospital as nearly situated to his work as possible. He would ask the Secretary of State for Scotland if his attention had been drawn to the appeal made by the medical officers for the consideration of the establishment of a superannuation fund. They regarded themselves now as being in the State service, and judging from the report which he had just been reading it was quite clear that they had some claim to be considered. There was another important point. It was often very difficult for the local doctor to get a suitable house. The local doctor should be guaranteed a house, or the site for a house, in the remote parts where it was often difficult to get them. He was glad to see in any case that the Board of Health were still considering that point. Last year he thought they had caused the erection of three houses for doctors in various parts of the country. That was the sort of thing that was worth doing.

Overcrowding and Disease.

Mr. J. STEWART said there were in Glasgow 277,000 people living in overcrowded conditions. Overcrowding in Scotland was three persons per room, while in England it was only two persons per room. In a single apartment they ranged from four per room to as many as 12 per room, and in the room and kitchen houses they ranged from six and seven to over 12 per house. That must produce results which were inimical to the welfare of the country, and it did not result in the saving of money. They were spending money very freely everywhere throughout Scotland in further extension of sanatoria and hospitals to deal with disease. In a district of Glasgow where he spent his early days 235 per 1000 of the children born died before they reached one year of age. Yet the standard rate for Glasgow was 107 per 1000. The diseases were respiratory diseases, tuberculosis in its various forms, measles, and whooping-cough. The children were dying practically like flies. Thousands of children were continuously pouring in and out of the infectious diseases hospitals as a result of bad housing conditions. Every child cost well over £1 per week, and in cases of tuberculosis about £2 per week. After they were cured they were sent back to the conditions under which they had contracted those diseases. According to the medical officer of Paisley rickets was a consequence of poverty and bad environment. Even in the new houses the people who had just come from the slums to the extent of 28 per cent. were living under overcrowded conditions. His charge against the Government was that they had not insisted upon a better standard of housing. It might be true that local authorities were supine, or even hostile to an improved standard of housing, but he had yet to learn that the authority of the Scottish Board of Health was so limited that they could not deal with recalcitrant local authorities. The people from the slums who had gone into the new houses were carrying verminous conditions with them. So far as Glasgow was concerned, the problem grew worse and worse. When they investigated it in 1919 they discovered that 57,000 houses were required immediately. To-day the number required was 107,000 houses. The number of insanitary houses, according to the figures of 1909 and 1910, was 13,000. To-day, in spite of slum clearances, that number had risen to 20,000. The medical officers of the local authority pointed out these things, but nobody was concerned about altering the conditions. It was a mistake to think that this country could survive with a poverty-stricken population pulled down through bad housing into a bad state of health, and growing up stunted and dwarfed.

Reply of the Under Secretary of State for Scotland.

Major ELLIOTT, replying to the debate, said that trade depression had been affecting Scotland for several years. But if they tested the matter by statistics they found that there had been an increase in the health of the people, a steady fall in sickness, and an improvement in nearly all the great questions affected by the administration of Scotland. They had been able to maintain their past standard even in the stress of deep industrial depression, and however they might desire that things should be better they must recognise that they had made some progress. He would like to give some figures dealing with tuberculosis. In 1926 the ordinary death-rate per 100,000 of the population in non-pulmonary cases fell. It was 34 in 1925, and 30 in 1926. The death-rate per 100,000 of the population from all forms of tuberculosis fell from 110 in 1925 to 99 in 1926. Compared with 1916, there were 1744 fewer people who died from non-pulmonary tuberculosis; making a total of 2815 fewer deaths from tuberculosis in 1926 compared with 1916. The number of beds definitely reserved for the treatment of tuberculosis was steadily rising, and they now had 4339 beds as compared with 4170 at the end of 1925, an increase of 169 beds. The provision of tuberculosis beds was continuing, and a number would come into use in relief of the problem in the course of the next few months, or the next year. As for infantile mortality, that also continued to fall. The rate was 83 per 1000, or eight less than the rate in 1925, and nine less than the rate for the immediately preceding five years, and 13 less than the rate for the preceding 10 years. It was the lowest rate on record, except that for 1923. In the report of the Board of Health they had not in any way ignored the desperate and appalling state of housing in many places in Scotland. It was not their policy to cover up that festering sore. Unless public opinion was continually reminded of the necessity for dealing with this problem there was danger that they would fall into a state of complacency. That was the last word, however, which could be applied to the Secretary of State for Scotland in that regard. He had been untiring in his efforts to forward the solution of that problem, and to bring the facts to the notice of the authorities, and he had taken steps of a very drastic kind on more than one occasion. The figures showed that last year they had the largest number of houses ever built in one year in Scotland, and they were able for the first time to do something towards catching up with the arrears as well as dealing with the current wastage. This year, up to the end of June or perhaps the beginning of July, they had built the whole of the year's requirements for Scotland, and every house built from now to the end of the year would be a clear gain and go towards the reduction of arrears. As regarded rural housing, nearly all the rural local authorities had

submitted schemes, or had now got schemes in operation. Mr. Macpherson had mentioned the Highlands and Islands Fund. That fund had an accumulated balance on which they were drawing to the extent of between £18,000 and £20,000 a year, but by 1928 or 1929 that accumulated balance would have run out and his right hon. friend would be faced with the unpopular duty of approaching the Treasury with a request for special treatment for Scotland.

Mr. T. JOHNSTON moved the reduction of the vote by £100. He said that he did so in view of the unsatisfactory nature of the Government's reply on the many points raised.

The motion to reduce the vote was rejected by 211 votes to 96.

NURSING HOMES (REGISTRATION) BILL.

The Nursing Homes (Registration) Bill was considered by Standing Committee A of the House of Commons on Tuesday, July 26th. Mr. MORGAN JONES was in the chair.

Unorthodox Practice.

Viscountess ASTOR moved an amendment to Clause 1 (which deals with the registration of homes), providing—

That where the application for registration relates to a nursing home (other than a maternity home) in which treatment by medical methods is not administered, the authority shall not refuse to register the applicant on account only of the conditions that the home, if a new home, is not under the charge of a resident duly qualified medical practitioner or duly qualified nurse; that there is not a proper proportion of qualified nurses on the staff; or, in the case of a nursing home which was in existence at the commencement of the Act, that it is not under the superintendence of a qualified resident nurse.

She urged that the amendment would carry out the policy of the Minister of Health when he stated that the Ministry would not cut themselves off from any form of treatment which was not orthodox. Under the clause as it stood it would not be possible for an osteopath or Christian Scientist to carry on a registered nursing home unless there was a duly qualified medical practitioner in charge. The amendment would give complete freedom to Christian Scientist nursing homes to be run on their own lines.

Sir KINGSLEY WOOD (Parliamentary Secretary to the Ministry of Health) said that he could not accept the amendment. He had no desire to enter into a discussion as to the merits of Christian Science. His only desire was to see that the Bill reached the Statute Book in a proper form. The conditions for registration already laid down in the clause were very proper conditions, and if the amendment were accepted it would be possible to drive a coach and four through the whole of the Bill. Clause 6, however, enabled a supervising authority to exempt hospitals, or similar institutions, which were not carried on for profit. There might be some possibility—he did not know—of an application being made under that clause by one of the homes which Lady Astor had in mind.

Miss SUSAN LAWRENCE said that she was strongly against the amendment, which, in her view, would make the Bill, which was already a weak one, quite ridiculous. What was the use of a nursing home if no medical treatment was given in it?

Viscountess ASTOR said that thousands of people had benefited from Christian Science nursing homes, but the clause would prevent people from getting treatment which they wished to have from unqualified people. In Canada and the United States this was a recognised form of treatment, and it was growing in this country.

Mr. CHAMBERLAIN (Minister of Health) said that he failed to see what connexion Christian Science had with the amendment. If the amendment were carried it would allow all sorts of practice to be included within the scope of the Bill, quite apart from Christian Science. Any kind of unorthodox practice would be possible under the cloak of the amendment, and the local authority would be unable to refuse registration to homes which were carried on without a properly qualified staff. The Ministry did not want to deprive the country of opportunities of healing by anyone so long as those who sought treatment by those methods were perfectly cognisant of the risks which they were running. But under this Bill they were entrusting the local supervising authority with the power to register nursing homes, and such authorities would not be able to avoid that responsibility by reason of an amendment of this nature. It would still be open to the local authority to refuse registration on other grounds which were provided in the clause.

Mr. J. BAKER said that this seemed to be a backward and not a forward step. He was not going to argue that the medical profession in this country was the best on earth, but the amendment raised rather too big a question to be settled in committee.

Viscountess ASTOR said that the Minister of Health had said that he did not object to Christian Science, but did the right hon. gentleman realise that under the Bill if Christian Scientists wanted to set up a nursing home they could not do so?

Sir D. NEWTON: They can do so if there is a medical man in the home.

Viscountess ASTOR: But no one wants a medical man. Continuing, the noble lady said that this was a very serious matter, because they were going to put Christian Scientists into the category of quacks, herbalists, and bone-setters. Hon. Members might laugh, but more and more there would be a demand for Christian Science homes.

Mr. BARKER said he had no knowledge of Christian Science, but he thought that the Committee should be very careful or they would enter into a sort of religious persecution. They ought not to force on people medical treatment in which they did not believe.

Dr. VERNON DAVIES said that they were not concerned with religion or Christian Science. He would remind Lady Astor that Christian Scientists recognised the need for medical treatment in such cases as a broken leg or infectious disease. But these Christian Science homes regarded themselves as the equal of the best nursing homes in the district and charged similar fees. They were therefore a commercial proposition under the ægis, if they liked, of the Christian Science religion. He urged that the Committee had no right to give exemption to such institutions.

Miss SUSAN LAWRENCE said that there was no class more preyed upon than the sick poor. They could see the absurd treatments which were advertised in the newspapers. This amendment would permit every sort of quackery in the world.

Mrs. HILTON PHILIPSON said that she was quite in sympathy with Lady Astor. She thought that the Christian Scientists did an immense amount of good, but the amendment was far too wide, and she would certainly vote against it.

The amendment was negatived without a division.

Amendments Carried.

Mr. GERALD HURST moved an amendment to put a time-limit on the privileges to be enjoyed by those nursing homes which were in existence at the passing of the Act. He said that they did not want a privileged class of nursing homes to be continued in perpetuity.

Sir K. WOOD accepted the amendment, which was agreed to.

Dr. VERNON DAVIES moved an amendment to Clause 4 (by-laws) to provide that if a local authority thought that miscarriages were too frequent at a particular home they might keep an eye on that home and see that the miscarriages were really genuine.

Sir K. WOOD accepted the amendment, which was agreed to.

Information as to the Cause of Deaths.

Sir R. LUCE moved an amendment to leave out of paragraph (*b*) of Clause 4 the reference to the making of a by-law requiring a statement of the cause of a death in a nursing home. He said that these words occurred in the Midwives and Maternity Homes Act, but since that Act was passed last year another Act had been passed altering the law in regard to the registration of births and deaths, and one of the clauses of that Act provided that the cause of death should be a confidential matter between the medical man who attended the patient and the registrar, and if these words were left in the Bill it would be the duty of whoever was running a home to state the cause of death, which she ought not to be in a position to do.

Miss LAWRENCE said that she opposed the amendment. They were dealing with deaths of children, and possibly mothers. This was a matter in regard to which there were sometimes suspicions of malpractices, and she would be very sorry to see the law relaxed.

Sir K. WOOD said that he agreed with Miss Lawrence that they must exercise care in regard to this matter. He had consulted the Registrar-General, and he would see that in every case where there was likely to be any suspicion information was sent to the local supervising authority.

Lieut.-Colonel FREMANTLE said that he was not at all satisfied with Sir K. Wood's explanation.

Sir K. WOOD said that he would endeavour to make arrangements by which the Registrar-General would inform the local supervisory authority of the number of deaths which might occur in a particular home, and if they appeared to be abnormal the authority would be placed on its guard and would be able to send an inspector to see what exactly was going on.

Sir R. LUCE said that it was not the object of the amendment to hide anything. What was desired was to make sure that unauthorised persons were not able to give the cause of death.

Dr. VERNON DAVIES suggested that the local supervising authority should be given the power to ask the Registrar to see the cause of death in any case in which they had a suspicion that there had been any irregularity.

Sir K. WOOD said that obviously he would have to have a further interview with the Registrar-General and would convey to him the wishes of the Committee.

The amendment was agreed to.

Inspection.

Sir R. LUCE moved an amendment to Clause 5 (inspection of nursing homes), designed to make it clear that while the medical officer of health was the officer normally responsible for the inspection of nursing homes the local supervising authority could in certain cases direct other officers to carry out that duty.

The amendment was agreed to.

The Non-County Borough as Supervising Authority.

Sir D. NEWTON moved an amendment to Clause 8 (local supervising authority), providing that the powers of the local supervising authority should be vested in the non-county boroughs as well as in the county councils and county boroughs. He said that many non-county boroughs had a skilled staff of medical officers, sanitary inspectors, and whole-time health officers, and were fully able to carry out the duties.

Lieut.-Colonel FREMANTLE thought that this amendment would lead to duplication of inspection. It would open the door to a lot of abuse. He suggested that a fair compromise would be attained if they inserted the following words :—

"Where the council of any borough or urban district, of which the medical officer of health is precluded from engaging in private practice, shall resolve that the powers of a local supervising authority under this Act would be more efficiently administered by them without detriment to the administration of the Midwives Acts, the county council may by resolution delegate such powers to that council; and that council shall thereby become the local supervising authority under this Act."

Sir K. WOOD said that he thought that they were entitled to say that those authorities which had whole-time medical officers of health should be entrusted with the supervision of nursing homes.

Sir D. NEWTON'S amendment was carried.

Definition of a "Qualified Nurse."

Sir R. LUCE moved an amendment to Clause 9 (interpretation), providing that—

In relation to any premises used and intended to be used solely for the reception of, and the provision of nursing for, a class of patients in whose case the requisite nursing could be suitably and adequately provided by nurses of a class whose names were contained in some part of the register of nurses required to be kept under the Nurses Registration Act, 1919, other than the general part of that register, references in the definition of "qualified nurse" contained in subsection (1) of this section to the general part of the register shall be construed as including references to that other part of the register.

He said that the object of the amendment was to provide that where a home was devoted to one particular class of patient that those in charge of it should be able to employ nurses who had been trained in that particular branch of treatment.

The amendment was agreed to.

A New Clause Applying to London.

Mr. GERALD HURST moved the following new clause applying the Bill to London :—

This Act shall apply to the administrative county of London subject to the following modifications: (i) As respects the county of London the London County Council and as respects the city of London the Common Council shall be the local supervising authority; (ii) any expenses incurred under this Act by the London County Council shall be defrayed as general county expenses and any expenses so incurred by the Common Council shall be defrayed out of the general rate; (iii) the London County Council may delegate to the council of any metropolitan borough all or any of its powers under this Act other than the power to make by-laws, and any such delegation may be either absolute or subject to such terms or conditions as the London County Council may think fit, including conditions for the repayment by the London County Council to a council to whom powers are so delegated of the whole or part of the expenses incurred by that council in the execution of the powers so delegated; (iv) any expenses incurred by the council of a metropolitan borough in the execution of any powers delegated to it shall, in so far as those expenses are not repaid to that council by the London County Council, be defrayed as part of the general expenses of the council, and any fees received under this Act by the council of a metropolitan borough shall be paid into the fund out of which expenses incurred under this Act by that council are to be defrayed.

The clause was agreed to.

The Committee stage was completed and the Bill was reported to the House.

HOUSE OF COMMONS.

THURSDAY, JULY 28TH.

Approved Societies and Dental Treatment.

Mr. HAYES asked the Minister of Health whether he was aware that when a member of the National Health Insurance submitted an estimate for dental treatment which included the administration of a general anæsthetic, the National Amalgamated Approved Society questioned the dentist upon this treatment and demanded to be advised why the extraction could not be made under a local anæsthetic; and whether, in the interest of the patients, he would recommend to approved societies the desirability of discontinuing the practice of questioning professional treatment.—Mr. CHAMBERLAIN replied: I am not aware of the practice of the particular society referred to in the first part of the question, but I understand that the Dental Benefit Joint Committee, by whom the scale of fees and conditions of service were negotiated, have at present under consideration the question of the right of a patient to choose the anæsthetic to be used in his case. Pending the committee's decision, I do not propose to take any steps in the matter.

Effects of Insulin Treatment.

Mr. FORREST asked the Minister of Health how many people suffering from diabetes had been cured by the treatment of insulin; and in how many cases such treatment had merely controlled the disease but not cured it.—Mr. CHAMBERLAIN replied: Insulin is not a curative agent in the ordinary sense of that term, and it is administered with the object of neutralising for the time being the consequences of the disease, although in certain cases its prolonged administration may be followed by a diminution in, or even the entire disappearance of, the active symptoms. No statistics are available as to the number of persons who have received this treatment nor is it possible to ascertain the number of cases in which the administration of insulin has contributed to the cure of this disease.

FRIDAY, JULY 29TH.

Diphtheria in Dagenham.

Mr. BROAD asked the Minister of Health the number of cases of diphtheria in Dagenham during the last 12 months, and the number of fatal cases; whether this disease was prevalent throughout Essex; and whether any and, if so, what special steps were being taken to combat it.—Mr. CHAMBERLAIN replied: The numbers of cases of, and deaths from, diphtheria in the urban district of Dagenham have been as follows :—

	Cases.	Deaths.
In 12 months ended July 2nd, 1927 ..	80	9
In 3 weeks ended July 23rd, 1927 ..	23	4

I am advised that there is no exceptional prevalence of the disease throughout Essex, although a small outbreak recently occurred in Dagenham. I am informed that the usual precautions were taken, including the removal of all the cases to hospital.

Importation of Cocaine and Cocaine Hydrochloride.

Mr. FENBY asked the President of the Board of Trade if he was aware that the exemption orders applied for last year under Section 10 (5) of the Finance Act, 1926, in respect of cocaine and cocaine hydrochloride, being products liable to duty under Part I. of the Safeguarding of Industries Act, 1921, had not yet been issued; that his department were refusing to issue these exemption orders, although the products in question were still not made in His Majesty's dominions; and that, in consequence, hospitals and the general medical service, who were the chief consumers of these products, which had to be imported, were compelled to pay considerably more than would otherwise be the case would he take steps to issue the exemption orders in question forthwith; and, if not, what further period of time he proposed to allow in respect of the products in question.—Sir P. CUNLIFFE-LISTER replied: Before I can make any recommendation to the Treasury under Section 10 (5) of the Finance Act, 1926, to exempt any article from duty, I must be satisfied that there is no reasonable probability that the article will be made in His Majesty's dominions in substantial quantities within a reasonable period. Preparations for the manufacture of these materials in this country are well advanced, and I do not propose to make any recommendations to the Treasury on the subject at present.

Male and Female Population of Scotland.

Dr. SHIELS asked the Secretary of State for Scotland the male and female population of Scotland for 1913, 1919, and 1921 to 1927.—Sir JOHN GILMOUR replied: By the Census of Scotland taken in 1921 the male population was found to amount to 2,347,642 and the female population to 2,534,855. Estimates by the Registrar-General for Scotland of the male and female populations in the other years referred to in the question are shown in the following table :—

Year.	Male.	Female.	Year.	Male.	Female.
1913	2,296,370	2,431,762	1924	2,347,228	2,534,409
1919	2,313,600	2,506,477	1925	2,352,708	2,540,324
1922	2,358,201	2,546,255	1926	2,354,441	2,542,197
1923	2,356,587	2,544,513	1927	2,353,500	2,541,200

Correspondence.

"Audi alteram partem."

THE SUPER-EGO OF FREUD.

To the Editor of THE LANCET.

SIR,—The tendency to postulate a living and intelligent agency as the cause of phenomena not immediately identifiable with familiar responses to environmental forces would seem to be an innate characteristic of cerebral protoplasm. The snake that has wandered out of the bush on to the sea-shore hisses at the rolling waters, the dog growls and erects his dorsal hair at the moving newspaper, the rhinoceros charges the railway train, the horse shies at its shadow, and man invents hosts of demons, fairies, ghosts, monitors, and psyches to account, on the one hand, for those several feelings, fears, fancies, and dreams that are in reality but sensory cerebral cell disturbances set up by afferent impulses emanating from enteroceptive, proprioceptive, and exteroceptive sources, and initiated therein, directly or indirectly, by environmental stimuli, and on the other hand, for those several behaviours that are but the motor reactions of the organism to such afferent impulses. In lower animals such characteristic, possessing obvious survival value, is a vital necessity, in primitive man an excusable frailty, in civilised man a regrettable backsliding. Just as the liar, to escape detection, is often driven, like the ancient giants piling Ossa on Pelion, to cover one lie with another, so those who invent an absurdity in explanation of a phenomenon not altogether understood, often find themselves in the unenviable position of having to invent yet more fantastic absurdities to bolster up their illegitimate first-begotten one. Ancient cosmologists, observing that objects fell unless supported, accounted for the earth's apparent stability by the assumption that it rested on the back of an elephant. It was a cleverly thought-out working hypothesis, for such otherwise mysterious events as thunder and earthquakes were easily explained away, as the shaking and trumpeting of the cosmic pachyderm. But embarrassing questions began to be raised concerning the foothold of the elephant. This little difficulty was overcome by recourse to a colossal tortoise on whose back the elephant with his mundane burden was placed. When, in due course, similar information was requested concerning the tortoise, the wily sages resorted to the device of transmuting that creature into a pelagic turtle which they set swimming about in an infinite sea, thus effectively silencing the hecklers.

The habit of alluding to the mind as though it were a something standing apart from brain is common amongst those who have never seen the inside of a human skull. Unhappily, even medical men are not altogether innocent of the fault of applying such question-begging epithets as "elusive entity" either to the mind itself or to what is equatable with it. I allude to such expressions as, for instance, "ego," "self," "personality," "psyche," &c., which, while admittedly convenient counters of thought in ordinary every-day parlance, should have no place in a strictly scientific terminology, seeing that they introduce quite uncalled-for difficulties and obscurities. Even Lord Haldane, whom his worst enemy could not accuse of materialistic leanings, laughs to scorn all attempts to elucidate the meaning of "self." You will never find this "*supposed* individual," he says in his Gifford lectures, for the simple reason that "it is an abstraction" which you "have been trying to identify with reality." And as for the "ego," he whittles it away until nothing is left; it is, he says, "a mere asymptotic regress towards a notional pure subject of knowledge—a thinker without thoughts, an abstraction, nothing at all." [1]

The "ego" or "self" is, I submit, nothing more nor less than the living body plus a functioning or functionable brain. Our ideas of personality are framed in the somewhat deceptive setting of memory and behaviour. Just as the woodsman who, though he has frequently renewed during the long years of use both haft and blade of his axe until nought of the original implement remains, still continues affectionately to allude to it as "my old axe," so we, equally unwarrantably, confer upon our ever-changing organism a personality extended and immutable in time. We are deceived by the quiet and exquisitely accurate manner in which the atoms that come fit into the niches, so to speak, and carry on with the work of the atoms that go.

Not content with having called into existence a primary cerebral monitor, a fell demon of the unconscious that haunts the cavernous recesses of our brains, and holds the keys of the casket in which are locked our most secret and sacred thoughts, holds them, too, in a grasp that only "analysis" can relax; not content with having housed within us a horrid imp that is ever inciting us to deeds unmentionable (a kind of, to anti-paraphrase Arnold, something-not-ourselves-that-makes-for-unrighteousness), Prof. Freud has now hatched out of the "father-complex" yet another monstrosity which he has christened the "super-ego" who, apparently, stands minatorially over the common or garden "ego." [2] One wonders where it will all stop. At this rate "egos" will have to be distinctively labelled, like the units of star systems, with prefixes, alpha, beta, gamma, &c., or, like pieces of ordnance, with suffixes, Mark 1, 2, 3, &c., or, *horribile dictu*, when they run into the centuries, with numerals after the fashion of the salvarsans and their congeners! But why not save trouble and classify them like other troublesome entities in a simple but comprehensive statement that "Little Egos have Super-Egos whose function 'tis to right 'em. And Super-Egos have higher Egos, and so *ad infinitum*."

I am, Sir, yours faithfully,

CHARLES M. BEADNELL,
Surgeon Rear Admiral, R.N.

Cwmgoedwig, Llanfarian.

[1] Gifford Lectures, 4 and 6, in Pathway to Reality, by the Right Hon. R. B. Haldane, F.R.S.

[2] The Ego and the Id, by Sigmund Freud. Translated by Joan Riviere. International Psycho-Analytical Library.

CORONARY THROMBOSIS.

To the Editor of THE LANCET.

SIR,—Dr. L. Abrahamson, in his interesting account in THE LANCET of July 30th (p. 224) of a case of coronary thrombosis, takes the text-books to task for so rarely treating the condition as "an ante-mortem clinical entity." Surely, the ante-mortem importance of the condition has been recognised for years. The 1908 edition of "Osler" considers very fully the effect of a non-fatal occlusion of a coronary vessel by a thrombus or embolus—a condition of fibrous myocarditis—which "may result from the transformation of areas of anæmic necrosis." Osler, indeed, emphasised in the same place that "a knowledge of the changes produced in the myocardium by disease of the coronary vessels gives a key to the understanding of many problems of cardiac pathology."

Dr. Abrahamson, though quoting Dr. A. G. Gibson's paper,[3] hardly gives the latter sufficient credit for it. Dr. Gibson very ably sums up the symptomatology of the condition of coronary thrombosis (ischæmic necrosis) when he states that "chronic cardiac failure in old people, in the absence of syphilis, old rheumatic affections of the heart, or pernicious anæmia, is almost certainly due to ischæmic necrosis," and that "chronic cardiac failure plus evidence of aseptic embolism makes the diagnosis of ischæmic necrosis practically certain." As will be seen by these statements, therefore, coronary thrombosis must be a common condition in general practice. Dr. Abrahamson, however, does well to refer to the subject, as there is no doubt that practitioners do not

[3] THE LANCET, 1925, ii., 1270.

keep the thrombotic origin of heart disease sufficiently in mind.

It is my experience that coronary thrombosis is on the increase—a fact which I attribute to the increased prevalence of influenza latterly. In a recent letter[4] I drew attention to the common occurrence of pulmonary infarction in influenza, and mentioned that embolism occurred in other situations as well. Cerebral thrombosis, I have noted, occurs in old people during the influenza epidemics, and I have no doubt (by analogy) that many of the cases we general practitioners label "myocarditis following influenza" have a similar thrombotic origin in the coronary vessels.

I have seen several cases since the beginning of 1926. One man of 67, who had a "severe cold" in February, 1926, presented the identical picture described by Dr. Abrahamson in his case, with this addition—there was a marked pericardial rub. I expected the man to die; he is still alive, but his heart is badly scarred, and I would not be surprised to see him dropping dead at any time. On Jan. 3rd, 1926, I saw a very fat women over 60, with an acute præcordial pain and an ashy colour and imperceptible pulse, and could only diagnose coronary embolism; the patient recovered. It was curious that I saw an endocarditis case with a pulmonary infarct on Dec. 29th, 1925, and another endocarditis case with hæmaturia (renal infarction) on Dec. 31st. I saw also many embolic cases right up to May, 1926. There is no need to state that influenza was very prevalent during this period. On May 14th and 16th of this year I had two sudden deaths—both very suggestive of coronary embolism. On May 10th I saw a case of pulmonary infarction. And so on.

It is my belief that coronary thrombosis or embolism may occur in healthy people as the result of an attack of influenza, though, of course, it is more likely to occur in the subjects of arteriosclerosis. It is interesting to note that the youngest case described by Dr. Gibson—a woman of 25—followed influenza; and that there was a history of influenza in two of the three cases described by Dr. Carey Coombs, though the latter put inverted commas to the diagnosis of influenza.

It is probable that coronary thrombosis may result as the effect of any of the infectious diseases in the same way. But owing to influenza being so constantly with us I cannot help thinking that it must take first place nowadays.

I am, Sir, yours faithfully,

AMBROSE W. OWEN.

Aberdare, Glam., August 1st, 1927.

TREATMENT OF PERNICIOUS ANÆMIA BY RAW LIVER.

To the Editor of THE LANCET.

SIR,—The report in your issue of August 6th (page 283) of a paper on this subject by Prof. Minot, of Boston, makes giving a short account of a patient now under my care perhaps worth while.

H. M., male, aged 44, was admitted into the Prince of Wales's General Hospital on May 20th last suffering from pernicious anæmia. He was very ill indeed. Free hydrochloric acid was absent from his stomach contents. His teeth were in good order. The red blood-cell count was given as 1,300,000 and the hæmoglobin as 35 per cent. Poikilocytosis, anisocytosis, polychromatophilia, punctate basophilia, seven normoblasts and four megaloblasts were reported by the pathologist (Mr. Benians). Treatment with raw calves' liver was at once instituted, the patient taking 8 oz. per day. Some was pounded and given in soup, some was lightly browned in slices so that the inside remained red; most was taken in bread and butter sandwiches. In addition, a mixture was given of dilute hydrochloric acid with tincture of perchloride of iron (40 ♏ and 20 ♏ respectively) thrice a day after food in half a pint of water. In successive weeks the red cell count rose to 2,300,000, 3,100,000, 3,900,000, and 4,220,000, the hæmoglobin increasing to 75 per cent. and giving, on June 17th (four weeks after admission), a colour-index of 0·3. On this date the only microscopical abnormality noted by the pathologist was very slight anisocytosis. Following discharge from hospital on June 21st, there was a fall in the red blood. cell count to 3,840,000, but the lost ground was quickly regained, 4,250,000 being reported on July 7th, and 4,380,000 on July 26th.

The patient looks perfectly well, is earning his living as a boot repairer, and continues to take daily 4 oz. of raw liver with 30 ♏ of dilute hydrochloric acid and 15 ♏ of the iron tincture after the three principal meals. It is hard to resist the conclusion that the claims made for this method of treatment are well founded, and attention may be drawn to the paper on the subject by Aitoff and Loewy that appeared in the *Presse Médicale* for April 30th, 1927.

I am, Sir, yours faithfully,

August 7th, 1927. F. G. CROOKSHANK.

[4] THE LANCET, 1927, i., 313.

QUININE AND CHINOSOL SUPPOSITORIES.

To the Editor of THE LANCET.

SIR,—The letter of the Hon. Sec. of the C.B.C. Medical Research Committee in your issue of July 30th calls for a reply. In writing my previous letter my only object was to contribute to the study of a problem which both that Committee and myself are anxious to elucidate. It is unusual to speak of medical procedures being "imitated"; we describe our methods fully so that other workers may adopt them and further test their efficiency.

It is of minor importance who was the first to "initiate discussion on the application of chinosol to contraceptive problems," but in view of the claim put forward by Mr. Roe the following facts may be of interest. Miss Ettie Rout informs me that chinosol has been in use as a contraceptive for many years, that it was used both in the form of a greasy ointment and in greasy suppositories during the later years of the war, and that in 1921 a chemical manufacturer in London, at her request, made greasy suppositories and non-greasy effervescing tablets containing one-fifth of 1 per cent. of chinosol. Further, in 1921 a patient brought me from Austria three contraceptive preparations containing chinosol: (1) cocoa-butter suppositories, (2) a greasy ointment, and (3) a non-greasy jelly. In 1923 I bought in Dresden greasy suppositories containing one-tenth of 1 per cent. of chinosol in a lanoline-cocoa-butter base, and some others of double that strength.

In the face of these facts it is difficult to imagine that there can be any real novelty about the preparation recommended by the C.B.C. Committee, unless, of course, there is some new and important factor about the composition or preparation of their chinosol suppositories which makes them essentially different from all previous varieties. I am sure that many others of your readers besides myself would welcome the Committee's description of the exact formula of the "perfected form" which they have found so satisfactory in over 800 cases.

I am, Sir, yours faithfully,

Harley-street, W., August 8th, 1927. NORMAN HAIRE.

ASTHMA AND ARTHRITIS IN ALTERNATION.

To the Editor of THE LANCET.

SIR,—The following case is, I think, somewhat unusual.

Mrs. S——, aged 61, suffered constantly from asthma for many years. After a short visit to the seaside in 1922 her asthma was apparently cured, but she developed rheumatoid arthritis of all the metacarpo-phalangeal joints, with the exception of those of the middle fingers of both hands, which never became affected. Since then she has suffered from either asthma or arthritis, never both together, the attacks alternating at quite irregular intervals, without being influenced by either climate or drugs.

The only reference I can find to this condition is in H. W. Crowe's "Treatment of Chronic Arthritis," where an almost similar case is quoted as being unique.

I am, Sir, yours faithfully,

SYLVIA B. WIGODER, M.D. Dub.

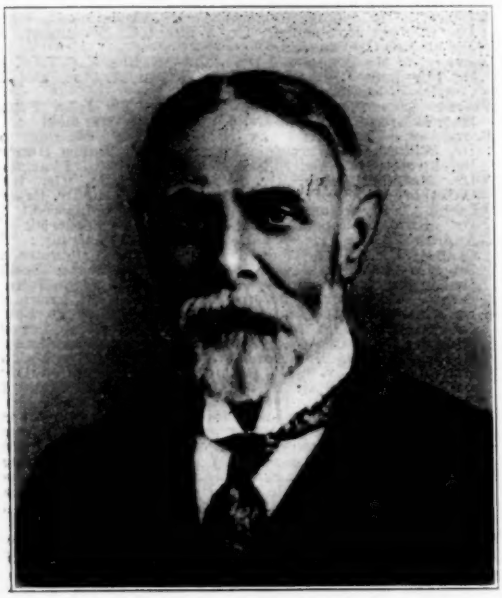
Dublin, August 2nd, 1927.

Obituary.

CHARLES WILBERFORCE DANIELS,
M.B. CAMB., F.R.C.P. LOND.

LIVING in an age of great discoveries in tropical medicine, Dr. C. W. Daniels rendered outstanding services as a teacher and an investigator. His modest and retiring nature did something to prevent full recognition of his merit, but the news of his death on August 6th will be received with real regret by the many pupils and colleagues who came under his kindly and stimulating influence.

Born in 1862, Charles Wilberforce Daniels was the third son of the Rev. Thomas Daniels, rector of St. Paul's, Hulme. From Manchester Grammar School



DR. C. W. DANIELS.

he won a scholarship at Trinity College, Cambridge, later proceeding for clinical training to the London Hospital. There he rapidly gained a reputation for proficiency in medicine, with a special leaning to midwifery, and after qualifying in 1886 he filled the offices of house physician, house surgeon, and resident accoucheur. He entered the Colonial Medical Service in 1890 and was sent for duty to the Fiji Islands, where he spent several years, and made a careful study of the dysentery epidemics occurring annually in the sugar plantations. In 1894 he was seconded to British Guiana and gained a great reputation among the colonists and inhabitants for his skill as an obstetrician. His main interest was, however, in tropical medicine, and he performed a vast amount of pathological work in Georgetown, much of which was later embodied in his book, "Tropical Medicine and Hygiene" (1907–12). He had a large share in starting the British Guiana Medical Annual Reports, a useful publication to which he was a frequent contributor. He was the first to draw attention to the variation in the weight and volume of certain organs—notably the lung—in tropical and temperate climates, and in 1896 and 1897 he discovered the adult worms of *Filaria demarquayi* and *ozzardi*, later finding those of *F. perstans* also. The specimens were sent home to Sir Patrick Manson, at that time medical adviser to the Colonial Office, who was able to add a more minute description of them. In 1899, at Manson's request, Daniels was appointed by the Royal Society to go to Calcutta to study the life-cycle of proteosoma in culex, and within three months he was able to confirm the work of Sir Ronald Ross in every particular. Proceeding directly from Calcutta to Nyasaland he became a member of the Royal Society's commission on blackwater fever, and together with Stephens and Christophers, was able to accomplish a fine piece of work. He himself suffered from two attacks of blackwater.

From Africa Daniels returned to London as superintendent of the School of Tropical Medicine, succeeding Dr. D. C. Rees. He was particularly successful in conducting the new enterprise, but in 1903 left England again to become first director of the Institute for Medical Research at Kuala Lumpur, in the Malay States, his place as superintendent of the London School being taken by Dr. G. C. Low. His energies in Malaya were attracted by the problem of beri-beri, but it was not many years before he was back in London at his old post. There he remained until 1910, when he took up consulting practice; by this time he had become physician to the Hospital for Tropical Diseases and lecturer on the subject at the London Hospital, at the London School of Medicine for Women, and at St. George's Hospital. In 1912, on the retirement of Sir Patrick Manson, he was appointed an adviser to the Colonial Office, and held this post until 1920, when ill-health made it necessary for him to lead a quiet life in the country. For eight years he suffered from gradual and distressing disablement, and those who knew him during the last part of his life will chiefly remember him for the uncomplaining fortitude with which it was borne.

Dr. Daniels played a very considerable part in founding the practical teaching of the London School of Tropical Medicine. He was a good teacher, possessing an especially clear and direct style, and his influence on students was profound. Sound judgment and a critical mind were reflected both in his clinical and his literary work. "He was a very straight man in every way," writes a colleague, "and never went back on his word. Though he had his likes and dislikes he never spoke unjustly of anyone, nor did he ever run people down behind their backs. He was averse to pushing himself or advertising himself in any way. If he had done so he would have occupied a higher position than perhaps he did, but to the true scientist work comes first and position only second."

Dr. Daniels married the daughter of Mr. William Slater. During his later years he lived at Ilford.

HARRY WILLIAM PIERPOINT, O.B.E.,
F.R.C.S. ENG., D.P.H. CAMB.,
LIEUT.-COL., I.M.S.

THE untimely death of Colonel Pierpoint will deeply touch the large circle of friends, Indian and European, whose affection he had gained. Born in 1879, Harry Pierpoint studied at Liverpool, and after taking his conjoint qualification in 1902 became house surgeon at the Royal Infirmary, and then in succession junior demonstrator of anatomy and demonstrator of pathology, in each case holding a fellowship of high distinction. A year after taking his F.R.C.S., in 1905, he received his first commission in the Indian Medical Service, when he was placed in medical charge of the 51st Sikhs (Frontier Force) and acted as civil surgeon to the Khyber Agency. Early in his career he became attached to the political department of the Government of India and much of his service was spent in the Native States and in Persia where before the war he travelled as a member of the International Commission which delimited the Turko-Persian frontier. He stood out as a fine linguist in a service of high linguistic attainment, and his knowledge of Persian, Afghani, and Urdu, combined with personal fearlessness, took him into regions which Europeans rarely entered. His knowledge of medicine covered a wide field, his greatest interest, as befitting a Liverpool graduate, being in orthopædics, and it fell to his lot during the war, at first in association with Colonel

H. Hallilay as commandant, later as commanding officer himself, to organise the great war hospital at Ambala, where he installed elaborate orthopædic and electrical appliances with no aid but that of native mistris from the bazar. This excellent work was rewarded with the O.B.E. in June, 1919. One who was associated with him at that time writes: "Pierpoint was constantly evolving new ideas and exploring lines of investigation suggested by them, but although a clever and virile writer his extreme modesty and hatred of publicity did not permit him to make those contributions to medical literature that his attainments warranted. He was simple and unassuming, but had the faculty of arousing deep affection in almost all who came in contact with him. If he had any enemies, it must have been because of his hatred of injustice and his fearlessness in expressing his views. Among his intimate friends he was the best of company, gay, even volatile, humorous, interesting, and full of charm."

WILLIAM JONES GREER, F.R.C.S. IREL., D.P.H.

Dr. Greer, who died at Newport, Monmouth, on August 2nd, in his fifty-seventh year, was the son of Jones Greer, of Armagh, and was educated at the Royal School there and at the Queen's Colleges of Galway and Belfast, studying medicine later at the Royal College of Surgeons in Dublin. He qualified in 1891, taking his surgical fellowship four years later, and settled in Newport, where he was at first certifying factory surgeon and later medical referee under the Workmen's Compensation Act, while he soon secured appointment on the surgical side of the Newport and Monmouthshire, Pontypool and Blaina Hospitals. From the first he took a keen interest in the diseases and accidents of the industrial community in which he had made his home, and it was fitting that he should be asked by the British Medical Association to preside over the Fractures Enquiry Committee instituted in 1912. The experience there gained may be read in an admirable article on fractures contributed to the "Index of Prognosis" in 1919, in which the economic loss from imperfect treatment is fully set out. A major in the R.A.M.C. (T.), attached to the 3rd Western General Hospital, he was occupied during the war as special surgeon in the military hospital set up at Newport. His other surgical publications include papers on gastro-jejunostomy and fibrous tumours of the mesentery.

FELIX COULSON VINRACE, M.D. R.U.I., F.R.C.S. ENG.

Mr. F. C. Vinrace, who died on July 26th at the age of 69, was the founder of St. Paul's Hospital for Skin and Genito-Urinary Diseases and for 29 years served the institution as surgeon. His father, Dr. John Vinrace, practised in Birmingham for half a century and had four sons who entered the medical profession. Felix Vinrace was educated at King Edward's Grammar School, at the University of Birmingham, and at Queen's College, Galway. He also studied medicine at University College and at the London Hospital, from which he qualified as M.R.C.S. in 1879. Two years later he graduated as M.D. and in 1886 he became F.R.C.S. The period that followed was spent in gaining a wide general experience; he held appointments as medical officer to the Hospital for Women, Soho, demonstrator of anatomy at the London Hospital, and house surgeon, house physician, and resident obstetrician at several Birmingham hospitals. In 1887 he joined the honorary staff of the Birmingham Skin and Urinary Hospital for which he worked actively for 32 years, being elected consulting surgeon in 1921. In 1898 he started St. Paul's Hospital, in Holborn, for the treatment of genito-urinary, cutaneous, and venereal diseases, and here again gave excellent service both as visiting surgeon and later as president. The success of the hospital, which was the first of its kind in this country, has largely been due to his enthusiasm and it owes much to his personal generosity. Mr. Vinrace's knowledge both of medical technique and of hospital management was constantly being reinforced by visits to foreign institutions, and during the last 30 years he had travelled regularly on the Continent with this object. He practised as a consultant both in London and Birmingham.

Mr. Vinrace was a bachelor. One of his brothers is Dr. Dennis Vinrace, of London.

Medical News.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.—The names of the new members admitted to the College, and of the officers of the College appointed for the ensuing year at the Comitia held on July 28th, were published in THE LANCET last week. At this Comitia the following committees were appointed:—

Members of the Library Committee.—Dr. Frederick P. Weber, Dr. Herbert R. Spencer, Dr. William C. Bosanquet, and Dr. Hector C. Cameron.

Curators of the Museum.—Dr. John M. Bruce, C.V.O., Dr. Sir Seymour J. Sharkey, Dr. William Hunter, and Dr. Charles E. Lakin.

Finance Committee.—Dr. John Fawcett, Sir John Francis Harpin Broadbent, and Dr. James Hugh Thursfield.

Examiners.—Chemistry: Dr. Robert H. A. Plimmer and Dr. William H. Hurtley. Physics: Mr. James Hancock Brinkworth and Dr. Sidney Russ. Practical Pharmacy: Dr. Nathan Mutch, Dr. William J. Adie, Dr. Hugh Gainsborough, Dr. Victor James Woolley, and Dr. Orlando Inchley. Physiology: Dr. Bertram J. Collingwood and Dr. Swale Vincent. Pathology: Sir Frederick W. Andrewes and Dr. Charles Bolton. Anatomy: Dr. Grafton E. Smith. Medical Anatomy and Principles and Practice of Medicine: Sir Percival Horton-Smith Hartley, Dr. Arthur G. Phear, Dr. Herbert S. French, Sir John C. Briscoe, Dr. John A. Nixon, Dr. Frederick S. Langmead, Dr. Charles E. Lakin, Dr. David Henriques de Souza, Dr. Francis M. R. Walshe, and Dr. James A. Torrens. Midwifery and Diseases peculiar to Women: Dr. Cuthbert H. J. Lockyer, Dr. Eardley L. Holland, Mr. Malcolm Donaldson, Dr. William Gilliatt, and Dr. Stanley Dodd. Public Health: Part I., Mr. John H. Ryffel; Part II., Dr. Charles Porter. Tropical Medicine: Dr. John C. G. Ledingham (Pathology and Tropical Hygiene); Dr. Henry H. Scott (Tropical Medicine and Surgery). Ophthalmic Medicine and Surgery: Dr. James Stansfield Collier. Psychological Medicine: Part I., Dr. Eric D. Macnamara; Part II., Dr. Robert P. Smith and Dr. C. M. Hinds Howell. Laryngology and Otology: Dr. Donald R. Paterson. Murchison Scholarship, 1928: Dr. Charles Bolton and Dr. James L. Birley.

Sir Hugh Kerr Anderson was elected a councillor in the place of Dr. J. H. Sequeira, resigned.—Dr. A. J. Hall was re-elected a representative of the College on the Court of Governors of the University of Sheffield for a period of three years from June 30th, 1927.—The President announced that he had appointed Sir Humphry Rolleston to deliver the Harveian Oration in 1928.—The Registrar reported the following acceptances of appointments: Dr. G. F. Still as Fitzpatrick Lecturer for 1928; Dr. J. S. Collier as Lumleian Lecturer for 1928; Dr. E. P. Poulton as Oliver Sharpey Lecturer for 1928; Dr. H. H. Dale as Croonian Lecturer for 1929; Dr. T. Izod Bennett as Goulstonian Lecturer for 1928; Dr. R. D. Rudolf as a Delegate of the College at the Centenary Celebration of King's College, Toronto, in October, 1927; Dr. L. S. T. Burrell as a delegate of the College at the Conference on Tuberculosis in London on June 30th and July 1st and 2nd, 1927.—The Moxon Medal was awarded to Sir Henry Head on the recommendation of the Council.—The Baly Medal was awarded to Prof. A. V. Hill on the recommendation of the Council.—Sir George Newman and Sir Arthur Newsholme were re-elected Members of the Executive Committee of the Imperial Cancer Research Fund.—The award by the University of Edinburgh of the Murchison Scholarship to Mr. John M'Michael, an undergraduate of that University, was announced.—Communications were received from: The Secretary of the Royal College of Surgeons, dated May 12th, June 10th, and July 14th, 1927, respectively, reporting the proceedings of the Council of that College on those dates; the Board of Trade, asking the College to advise them whether a suitable microscope should be part of the compulsory medical instrument equipment of ships that are required to carry a medical officer; the Secretary of King Edward's Hospital Fund for London, asking if the College would desire to give evidence before the Special Committee of Inquiry, called "The Pay Beds Committee," Dr. C. McMoran Wilson and Dr. H. Thursfield were nominated; the Hon. Secretary of the Child Guidance Council, inviting the College to appoint a representative to serve on its Council. Dr. F. J. Poynton was elected; the Ministry of Health, enclosing a copy of a note from the

French Ambassador, asking if the College desires to appoint a representative to the Congress of Medicine in Paris in October, 1927. The President was appointed the representative of the College. A report from the representative of the College on the General Medical Council of its proceedings at its meetings, May 24th to 27th, 1927, was received and entered on the minutes.—A report from Dr. W. Hunter of the reception of a deputation from the People's League of Health by the Minister of Health on June 28th, 1927, was received and entered on the minutes.—On the motion of Sir William Hale-White it was resolved unanimously that an expression of much regret at his resignation and of the great appreciation felt by the College for the ability, zeal, and devotion with which he had carried out his duties for nearly 50 years should be conveyed to Mr. Hallett.—The books and other donations to the library presented during the last quarter were received and the thanks of the College were voted to the donors.—After some further formal College business, the President dissolved the Comitia.

ROYAL COLLEGE OF PHYSICIANS OF LONDON AND SURGEONS OF ENGLAND.—The undermentioned diplomas were jointly conferred upon the following candidates:—

DIPLOMA IN TROPICAL MEDICINE AND HYGIENE.

R. Aird, G. L. Alexander, Charlotte Bacon, Elizabeth Bird, H. C. E. Chantler, R. P. Crawford, M. B. D. Dixey, W. N. Greer, C. S. James, J. V. Landau, K. Lindberg, T. McClurkin, S. Madwar, L. M. Maybury, W. B. A. Moore, Honor O. Newell, R. A. Pallister, F. M. Purcell, G. W. St.C. Ramsay, E. M. Rice, C. E. Sharp, E. C. Smith, C. R. Steel, N. H. Tadiwala, and K. C. Yeo.

DIPLOMA IN PSYCHOLOGICAL MEDICINE.

Stanley M. Coleman, Gerald F. Graham, Frederick H. Healey, Sidney Hillier, Eric G. Howe, William McCartan, Doris M. Odlum, Thomas Paton, Frank E. E. Schneider, Francis L. Scott, George N. O. Slater, and Thomas Tennent.

DIPLOMA IN LARYNGOLOGY AND OTOLOGY.

Mahmoud O. Abdeen, James B. Baird, Jack Bernstein, Charles H. C. Byrne, Edwin E. Day, Eric W. Gutteridge, David R. Macgregor, Ronald M. Savege, William McE. Snodgrass, George E. Tremble, Mary A. Wiles, and Wilfrid C. S. Wood.

The following report from the Committee of Management, dated June 21st, 1927, was received and adopted: The Committee of Management beg to report to the Royal Colleges on the following subjects: (1) the resignation of the Secretary of the Examining Board in England; (2) the appointment of a new secretary; (3) the recognition of various institutions.—The Committee have received a communication from Mr. F. G. Hallett expressing his desire to retire, in December next, from the post of Secretary to the Examining Board in England. The Committee recommend that Mr. Horace Hayter Rew, who has held the post of Assistant Secretary to the Examining Board in England for the last seven years, be appointed Secretary to the Board for the period of one year from Dec. 5th next, at a salary to be proposed by the Conjoint Finance Committee. That the following Universities and Colleges be added to the list of institutions whose graduates in medicine are admissible to the Final Examination in Medicine, Surgery, and Midwifery, under the conditions of Paragraph IV., Section III. of the Old Regulations, and Paragraph III., Chapter III. of the Regulations dated Jan. 1st, 1923—namely: The Masaryk University of Brno, Czechoslovakia; the Kornensky University of Bratislava, Czechoslovakia; the Medical College of Virginia, Richmond, U.S.A.; and the Meharry Medical College, Nashville, Tennessee, U.S.A.

At the Final Examination held from July 5th to 27th the following candidates were approved in the subjects indicated, but are not eligible for diplomas:—

Medicine.—R. E. Alderson, P. V. Bamford, O. A. Beadle, R. V. Bradlaw, Dorothy M. Bradley, W. E. R. Branch, J. R. Buchanan, Doris E. Bunbury, Doris B. Clay, Amy G. Clogg, E. Cohen, E. G. C. Darke, P. M. Deville, J. L. H. Easton, Muriel M. Edwards, Antoinette H. P. Ellis, C. J. Farr, H. T. Flint, H. G. Floyd, Helen M. G. Foster, W. Foskett, H. D. F. Fraser, T. R. Gaha, Caterina P. Giles, Yetta Gimpelson, Barbara M. L. Glover, P. S. Goonewardene, C. R. Greene, Nellie M. E. Hallinan, B. Haring, A. S. Hatch, Margaret A. L. Herbertson, Esther M. Hoskin, W. F. Hudson, T. I. Hughes, W. A. Hutton, S. Indersen, R. A. Isenstein, Agnes H. Jackson, D. F. Kanaar, G. H. Kennett, A. K. M. Khan, Theresa J. Lee, Edith G. Limmex, W. S. McConnell, H. I. Maister, H. E. Mansell, N. M. Matheson, A. A. Miles, R. V. Mone, D. T. R. Morris, Bhavani Natarajan, W. D. Neill, R. Newton, A. T. Pagan, T. N. Parish, W. G. Rees, S. H. Reeves, Norah Regan, Elizabeth J. Robinson, J. I. Sapwell, S. Scheinfein, T. G. Scott, F. G. V. Scovell, Margaret P. Shackle, Doris G. Sharvelle, T. E. N. Simpson, Clarice A. Skidmore, Dorothy Tims, A. D. Tomlins, Sybil E. Tremellen, D. R. Tweedie, J. H. Wainwright, A. J. Walsh, W. A. S. Welsh, and J. W. Wigg.

Surgery.—A. Ahmed, M. E. Albury, R. E. Alderson, F. W. Allinson, S. W. Allinson, A. F. Alsop, R. Anderson, Katherine Barnett, H. L. W. Beach, W. J. H. M. Beattie, W. V. Boyle, J. W. Bromley, J. T. Cahill, H. C. D. Calvey, Eleanor M. Carless, C. S. Carter, Mabel O. Cassels Freeston, G. A. Coggin, M. Coleman, M. Coll, N. B. Colman, B. W. Cooke, E. C. Cosgrove, F. R. Craddock, W. S. Creer, Mona C. Davies, Helena M. de Hartog, W. E. Dornan, F. W. Earle, J. A. Edward, C. H. Egan, E. Ellis, G.H. Evans, R. G. P. Evans, J. Foster, S. Gifford, Helen R. Goodman, Tatiana Gourlande, E. L. Graff, R. A. P. Gray, C. S. Gross, Brenda G. Hallett, M. R. W. Hart, J. L. Hartley, W. J. Heely, R. A. Hill, L. T. Hilliard, G. M. Housden, J. H. Howells, Lilian J. Hubble, E. C. H. Huddy, E. H. Hudson, S. Indersen, B. R. M. Johnson, H. A. Kidd, K. Knowles, H. N. Knox, E. Landau, T. C. Lansdale, J. M. Lees, R. F. Lister, W. H. Miller, W. Milligan, C. F. Moore, W. E. S. Moreton, T. Morton, W. H. Myburgh, H. P. Nelson, W. A. Nicholson, H. G. Nimbalker, W. R. S. Panckridge, J. R. Peacock, P. I. Peltz, E. R. S. Phillips, L. M. J. A. Pilot, G. W. Pimblett, D. Preiskel, A. M. Roberts, Florence E. Robinson, R. Rose, A. de la C. Russian, B. C. Singh, Lucy Stokoe, Ivy E. Tanner, B. A. Taylor, J. H. R. Thomas, S. L. Tunnicliffe, H. N. Walker, D. K. Weston, Hannah E. Wilby, W. J. Wilkin, Dorothy M. Wilkins, E. W. Winch, C. Wroth, E. C. Wynne-Edwards, and R. A. Zeitlin.

Midwifery.—Annie F. Allport, J. V. Almeyda, M. A. E. Anous, C. Arkles, W. R. Ashby, G. D. Augenlicht, Julia C. H. Avery, W. J. H. M. Beattie, C. A. Bence, Olwen R. Binyon, T. Blezard, Ruth Bocock, F. G. Booker, G. N. Box, W. E. R. Branch, J. R. Buchanan, W. Buckley, B. W. Cartwright, A. J. W. Chamings, H. A. Clarke, G. A. Coggin, E. Cohen, M. Coleman, H. E. V. Conceicao, E. Courtin, F. R. Craddock, Pera R. C. Crawford, J. E. Crooks, S. H. Croot, C. F. J. Cropper, A. W. Cubitt, A. M. Cunningham, A. Dala, E. R. L. Davies, Ethel G. Davies, Evelyn M. Davies, H. S. Davies, R. G. de Kock, R. de Sousa, Olivia F. Digby-Smith, C. J. V. Dobbin, O. C. Dobson, C. H. Egan, Dorothy E. Eglington, L. L. Eksteen, D. Ellis, J. W. Ellis, H. Epstein, G. H. Evans, M. J. Evans, C. J. Farr, B. L. Fishout, H. G. Floyd, J. Foster, C. R. E. Freezer, G. H. Garfield, T. O. Garland, Helen R. Goodman, J. C. Gordon, J. T. Gray, R. A. P. Gray, C. R. Greene, G. N. Grose, M. M. Gyi, H. N. Hallam, Brenda G. Hallett, J. L. Hartley, W. Heath, Kathleen M. Henderson, W. E. Herbert, Margaret A. L. Herbertson, R. A. Hill, L. T. Hilliard, F. E. G. Hopkins, Esther M. Hoskin, Josephine M. Howells, W. H. Hubert, E. C. H. Huddy, F. H. Hunnard, Dorothy M. James, E. T. James, B. R. M. Johnson, O. T. Jones, R. T. Jones, S. E. L. Kahla, D. F. Kanaar, C. A. Keele, R. A. Kennedy, S. J. Knight, Marie Krestin, I. B. Lawrence, Margaret Leathes, J. M. Lees, G. Leighton, Florence M. Lessing, I. B. Limbery, R. F. Lister, A. Long, C. P. Madden, H. I. Maister, F. B. Mallinson, F. Mansour, Mary L. Marsh, W. H. Miller, W. Milligan, M. V. Modi, H. A. Mohamed, P. H. L. Moore, Martha A. Morgan, D. T. R. Morris, G. van R. Mostert, D. B. Mumby, Bhavani Natarajan, H. P. Nelson, W. A. Nicholson, L. J. O'Loughlin, M. T. O'Sullivan, Ella M. Oswald, E. A. E. Palmer, Irene A. Papenfus, T. N. Parish, G. Parker, J. W. Pickup, G. W. Pimblett, A. E. Porritt, D. Preiskel, G. E. A. Prins, N. L. Probert, Dorothy M. M. Rees, W. G. Rees, W. G. Richards, J. H. Richmond, L. G. R. Roberts, I. M. Robertson, C. J. Sanderson, J. I. Sapwell, S. Scheinfein, T. G. Scott, D. A. Seaman, J. Seidenberg, H. N. Skelton, F. Smith, A. Southgate, B. Spencer, E. H. Spickett, S. H. Sgarey, Lucy Stokoe, W. P. R. Swemmer, A. G. C. Taylor, J. E. Thomas, J. H. R. Thomas, E. W. Thompson, J. P. Thyne, Elsie J. Todd-White, A. D. Tomlins, H. D. Vasey, J. Vaughan-Bradley, Kathleen A. Vernon, J. H. Wainwright, H. N. Walker, W. H. S. Wallace, K. Watman, A. J. Watson, W. S. Welsh, D. K. Weston, H. O. White, A. R. N. Whitlow, J. W. Wigg, W. J. Wilkin, Dorothy M. Wilkins, B. Williams, G. N. Wood, J. L. M. Wood, Elsie E. Wright, and C. Wroth.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH, ROYAL COLLEGE OF SURGEONS OF EDINBURGH, AND ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.—The following candidates have passed the Triple Qualification examination:—

FINAL EXAMINATION.

C. S. Ramachandran, A. W. M. Battersby, S. B. Stoker, A. S. Speirs, A. G. Young, C. J. Peoples, K. C. Voon, B. F. Lewin, F. X. Oliveiro, Alice Law, H. J. Marcelin, J. D. Cooper, H. C. Duncan, D. J. Campbell, J. B. J. Cameron, J. L. Thomson, William Moodie, S. K. Rigg, H. S. Strachan, Rangachari Padmanbhachari, J. W. Galloway, H. N. Maclachlan, Theodore Lipschitz, Dorothy J. O. Mitchell, L. M. Green, C. J. P. Paglar, J. G. Buchanan, A. G. Couston, E. M. Stone, R. G. McInnes, H. A. Brentnall, G. R. Day, Edwin Amarasinghe, H. D. M. L. Murray, and V. H. Leigh-Barlow.

Medicine.—P. G. Sawmy, G. M. Johnson, T. A. W. Wilson, Eileen McCabe, G. W. Milledge, R. S. Sawani, N. C. D. Gupta, G. D. Roche, Sandaman Sivalingham, C. D. C. Golding, K. R. Trembath, Walter Campbell, A. B. Xuma, and F. A. Buttner.

Surgery.—George M. Johnson, E. P. N. Abeysundere, T. B. Dobson, S. E. W. Boland, Ram Chandra Adhikaju, K. R. Trembath, Samuel Jurawan, Suppiah Kanagalingham, J. E. Mulholland, Tan Chong Yan, and W. T. A. Pearce.

Midwifery.—Puravasthu Gopaula Sawmy, T. B. Dobson, J. S. T. Isbister, G. W. Milledge, Ram Chandra Adhikaju, Raghbir Singh Sawani, Nripas Chandra Das Gupta, James Masilamani, F. H. Emery, G. D. Roche, Sandaman Sivalingham, Maurice Klar, C. D. C. Golding, Sunderdas Tulsidas Sodah, Samuel Jurawan, Suppiah Kunagalingham, W. T. A. Pearce, Walter Campbell, I. McG. Chisholm,

J. B. Forrester, Friedrich Adalbert Buttner, J. E. Felix, and J. W. A. M. McGuinness.

Medical Jurisprudence and Public Health.—Iskander El-Aroussi, H. T. Chapman, A. H. Fraser, Chee Juay Poh, A. B. P. Amies, Adbel Kader Mohamed Attia, Okunade Ajibade, Alexander Arnott, William Wallace, Florence Letitia Macdonald Millard, F. K. Fenton, B. A. Noel de Souza, H. A. Shakerley, R. D. Buckner, Chrysostom Joseph, Raghbir Singh Sawani, Sandaman Sivalingham, and Neil Mortimer Vallely.

UNIVERSITY OF LONDON.—At a meeting of the Senate held on July 20th the title of assistant professor of anatomy at University College was conferred on Dr. Henry Albert Harris.

Grants were made out of the Thomas Smythe Hughes Medical Research Fund to Prof. Mary Lucas Keene, M.B., and Evelyn Hewer, D.Sc., for the continuation of their investigations of the human fœtus, and to Kathleen Chevassut, M.Sc., for the continuation of research on the cerebrospinal fluid.

The Council for External Students has elected Dr. Graham Little to be its chairman for 1927–28, and Sir Holburt Waring and Sir Wilmot Herringham have been elected chairmen of the Finance Committee and the Committee of Medical Members of the Senate respectively.

CRUMPSALL INFIRMARY, MANCHESTER.—A new wing has been added to Crumpsall Infirmary, one of the largest Poor-law institutions in the country, and was formally opened on August 4th by Prof. A. H. Burgess, surgeon to the Manchester Royal Infirmary, who was at one time resident medical officer at Crumpsall and was afterwards for ten years a visiting surgeon.

UNION FOR SMALLER HOSPITALS.—A united council has been formed consisting of hospital representatives with the object of raising money for the smaller hospitals by combined schemes, which will not interfere with the ordinary income of individual hospitals. It is hoped to create a foundation fund of £20,000 to inaugurate the making of the scheme, and the council is organising a united hospitals pageant and festival at Olympia next year.

EGYPTIAN MEDICAL CONGRESSES.—The Royal Egyptian Legation draws attention to the fact that no connexion exists between the Medical Congress which the Egyptian Government proposes to organise in Cairo about December of 1928 and what is called Les Journées Médicales organised for the *Revue Pratique des Maladies des Pays Chauds* by Dr. Zeitoun. Particulars of the latter conference, which will be held in December, were published in THE LANCET of April 30th (pp. 939, 952).

GUY'S HOSPITAL.—The annual report of Guy's Hospital for 1926 records with uneasiness a deficiency of £24,000 in last year's income and expenditure account. In "a year of normal income and no abnormal outgoings this is an obvious danger-signal; re-endowment must still be an aim. If another £500,000 can be added within a reasonable time to the re-endowment fund, Guy's Hospital, while still offering a field for the charitable, would be able to dispense with those urgent calls for help which by iteration detract from the force of their urgency." The opening of the artificial sunlight department has appreciably increased the out-patient attendances during the year. An average of 80 patients have attended the department daily and 23,951 treatments have been administered.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.—An all-day course in medicine, surgery, and the specialties will be held at Queen Mary's Hospital, Stratford, from August 29th to Sept. 10th. All the departments of the hospital will be open continuously to those enrolling, and the course is intended for practitioners who wish to refresh their knowledge (fee £3 3*s.*) or £2 2*s.* for either week. The subjects of special courses in September will be: medicine, surgery, and the specialties, at the Westminster Hospital, all-day course (fee £3 3*s.*), diseases of children, at the Queen's Hospital, all-day (fee £3 3*s.*); ophthalmology, at the Royal Westminster Ophthalmic Hospital, afternoons only (fee £4 4*s.*); orthopædics at the Royal National Orthopædic Hospital, all-day mostly (fee £2 2*s.*); and psychological medicine at Bethlem Royal Hospital, bi-weekly lecture-demonstrations for one month (fee £1 1*s.*). Besides these special courses the Fellowship provides a general course of instruction at the associated hospitals. Further particulars of this and also copies of all syllabuses and of the *Post-Graduate Medical Journal* (annual subscription 6*s.*, post free) may be had from the Secretary of the Fellowship at 1, Wimpole-street, London, W. 1.

THE late Lady Henry left by will, among other bequests, £10,000 to St. Thomas's Hospital and £2000 to University College Hospital.

ST. THOMAS'S HOSPITAL DINNER.—The annual dinner of old students of St. Thomas's Hospital will be held on Friday, Oct. 28th, at St. Thomas's House, Lambeth Palace-road, at 7.30 P.M. for 8 P.M., Sir Charles A. Ballance in the chair.

THE LIVERY COMPANIES AT GOLF.—A silver-gilt bowl to be known as the "Prince Arthur Cup" has been presented for competition at golf between the Livery Companies of London, to commemorate the 250th anniversary of the Coachmakers' Company under their present charter, and the honour done to the Company by H.R.H. Prince Arthur of Connaught joining it and becoming an Assistant. It has been decided that a competition should take place at Walton Heath on Oct. 5th by bogey play, foursomes, each Company to send a team of six, and further particulars will be issued in due course.

All competitors must be Freemen of the City of London. The Society of Apothecaries being one of the City Livery Companies, its members, provided they have taken up the Freedom of the City, are eligible to take part in the competition. Any who would like to do so should communicate particulars of their handicap to the Clerk of the Society, Apothecaries Hall, Water-lane, E.C., or to Dr. Vincent Dickinson, who will be in charge of the arrangements for the Society.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.

MONDAY, August 15th.—10 A.M., Dr. Dowling: Skin Dept. 2 P.M., Mr. Addison: Surgical Wards. 2 P.M., Dr. Ironside: Medical Out-patient Dept.

TUESDAY.—11 A.M., Mr. Endean: Demonstration of Venereal Cases. 2 P.M., Dr. Shaw: Medical Out-patients. 2 P.M., Mr. Hamblen Thomas: Throat, Nose and Ear Dept.

WEDNESDAY.—2 P.M., Mr. Tyrrell Gray: Operations. 2 P.M., Dr. Scott Pinchin: Medical Out-patients. 2 P.M., Mr. Gibb: Eye Dept.

THURSDAY.—10 A.M., Dr. Grainger Stewart: Neurological Dept. 11 A.M., Mr. Simmonds: Orthopædic Dept. 3 P.M., Sir Henry Simson: Gynæcological Wards.

FRIDAY.—11 A.M., Dr. McDougal: Electrical Dept. 11 A.M., Dr. Pritchard: Modern Methods in Medicine.

SATURDAY.—10 A.M., Children's Out-patient Dept., Bacterial Therapy Dept.

Operations, Medical, Surgical, and Special Out-patient Departments, daily, 10 A.M. to 5 P.M. Saturdays, 10 A.M. to 1 P.M.

Appointments.

BINGHAM, T. H., M.D., B.Ch. Belf., D.P.H., has been appointed Assistant Medical Officer of Health, Swansea.

CULLEN, B. T., F.R.C.S. Edin., M.B.N.U.I., Medical Officer, St. Shelim's Hospital, and Assistant Medical Officer, County Tuberculosis Hospital, Cavan.

HOWELLS, G. H., M.B., B.S. Lond., Registrar to the Ear, Nose, and Throat Department of Charing Cross Hospital.

JONES, J. D., L.R.C.P. & S. Edin., D.P.H., Medical Officer and Public Vaccinator for the Festiniog District of the Festiniog Union.

LLEWELLYN, T., L.R.C.P. Lond., M.R.C.S., D.P.H., Medical Officer of Health and M.O. to the Educational Authority, Port Talbot.

MCALLISTER, A., F.R.C.S. Eng., Assistant Surgeon to the Samaritan Free Hospital for Women, and Assistant Gynæcological Surgeon to the Royal Waterloo Hospital for Women and Children, London.

PETTY, M. S., M.B. Camb., F.R.C.S. Edin., Hon. Surgeon to British Hospital, Buenos Aires.

Vacancies.

For further information refer to the advertisement columns.

Aberystwyth Infirmary, &c.—H.S. £200.
Bangor, Carnarvonshire and Anglesey Infirmary.—H.S. £200.
Barnsley, Beckett Hospital and Dispensary.—Jun. H.S. £140.
Bath, Royal Mineral Water Hospital.—Res. M.O. At rate of £130.
Bedford County Hospital.—Asst. H.S. At rate of £130.
Birmingham City.—M.O.H. £1800.
Birmingham, Selly Oak Hospital, &c.—Med. Supt. £1000.
Bolton, Townleys Hospital, Farnworth.—Second Asst. M.O. £225.
Bootle Borough Hospital.—Sen. M.O. and two Jun. M.O.'s. At rate of £150 and £125 respectively.
Brighton, Hove and Preston Dispensary.—Hon. Surg. Reg.
Bristol General Hospital.—H.P.'s, H.S.'s., Res. Obstet. O., and Cas. H.S. Each at rate of £80.
Cardiff, King Edward VII. Welsh Nat. Mem. Assoc.—Area Tub. P. £696. Also Asst. Res. M.O., for North Wales Sanat. £200.
Cardiff, Royal Infirmary.—Ophth. H.S. At rate of £75.
Carmarthen, Joint Counties Mental Hospital.—Sen. Asst. M.O. £450.
Chester Royal Infirmary.—Hon. Radiologist.
City of London Maternity Hospital, City-road, E.C.—Registrar. £100.
Doncaster, Royal Infirmary.—Third H.S. At rate of £150.
Dumfries, Crichton Royal Mental Hospital.—Clin. Pathologist. £400.
East African Medical Service.—Asst. Bacteriologist. £600.
Fareham, Hants, Knowle Mental Hospital.—Sen. Asst. M.O. £700.
Guildford Borough, &c.—M.O. £800.
Halifax Royal Infirmary.—Res. Surg. O. £250.
Hove, Lady Chichester Hospital.—H.P. At rate of £100. Also Jun. H.P. At rate of £50.
Jewish Maternity Hospital, Underwood-street, E.—Hon. Asst. Obstet.S.
Lincoln City.—Asst. M.O., &c. £600.
Liphook, Hants, King George's Sanatorium for Sailors.—Asst. M.O. At rate of £200.
Liverpool, Eye and Ear Infirmary.—Hon. Asst. S.
London Temperance Hospital, Hampstead-road, N.W.—Hon. Anæsthetist.
Manchester, Hospital for Consumption, &c.—Res. M.O. £200.
Miller General Hospital for South-East London, Greenwich-road, S.E.—Res. M.O. £250. Also Anæsthetist. 52 guineas.
Newcastle-upon-Tyne, University of Durham, College of Medicine. Prof. of Anatomy.
Norwich, City, Public Health Dept.—Temp. Asst. Sch. M.O. £11 11s. per week.
Norwich, Norfolk and Norwich Hospital.—H.S. £120.
Nottingham Children's Hospital.—Res. H.P. At rate of £150.
Nottingham General Hospital.—Res. Cas. O. At rate of £200.
Plymouth, South Devon and East Cornwall Hospital.—Cas. H.S.
Richmond, Surrey, Royal Hospital.—Asst. H.S. At rate of £100.
Royal Free Hospital, Gray's Inn-road, W.C.—H.P.
Royal Northern Hospital, Holloway, N.—H.S. At rate of £70.
Sheffield Royal Hospital.—Hon. Asst. Ophth. S.
Stockport Infirmary.—H.P. £175.
Stockton-on-Tees, Stockton and Thornaby Hospital.—Jun. Res. M.O. £150.
Weir Hospital, Grove-road, Balham, S.W.—Sen. and Jun. Res. M.O.'s £150 and £100 respectively.
West London Hospital, Hammersmith-road, W.—H.P. and two H.S.'s. Each at rate of £100.

Births, Marriages, and Deaths.

BIRTHS.

BRANDER.—On August 3rd, at Bexley, Kent, the wife of John Brander, M.D., of a daughter.

CHURCHER.—On July 31st, at Grange-gardens, Eastbourne, the wife of D. G. Churcher, M.D., F.R.C.S., of a daughter.

CROWE.—On August 1st, at Headingley, Leeds, the wife of W. Nigel Crowe, M.B., B.S., of a son.

GOSSET.—On August 5th, at Berrydown, Cliff-avenue, Margate, to Marjorie, wife of Dr. A. C. V. Gosset—a son.

MARRIAGES.

MACKENNA—TODRICK.—On August 6th, at St. John's U.F. Church, Haddington, Robert Merttins Bird Mackenna, M.R.C.S., L.R.C.P., to Helen Dora, daughter of Mr. T. W. Todrick, Old Bank, Haddington.

WHYTE—STOCKER.—On August 2nd, at Trinity Presbyterian Church, Bromley, Kent, Dr. Henderson Whyte, Hon. Staff, London Hospital, to Vera Marguerite, second daughter of the late W. W. Stocker and of Mrs. Stocker, Shawfield Park, Bromley.

DEATHS.

FINLAY.—On July 31st, at Hesdin, France, Gilbert Laurie Kerr Finlay, B.A. Camb., M.B., C.M. Edin.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Comments, and Abstracts.

A HEALTH REPORT FROM NIGERIA.

IN the report for 1926, signed by Mr. K. L. Hall, acting senior assistant secretary, it is stated that during the year there has been a notable absence of epidemics of relapsing fever and cerebro-spinal fever and small-pox such as occurred during previous years; the only exceptions being Ondo Province and Keana in Benin Province, where moderate outbreaks of relapsing fever occurred during the year. Cases of yellow fever were reported from Warri, Oshogbo, and Lagos in the southern provinces. The Rockefeller Yellow Fever Commission, now instituted at Yaba, Lagos, provided Noguchi protective vaccine, and all Europeans who desired were vaccinated. A special effort has been made to organise anti-mosquito measures. In Lagos the numerous small craft plying in the harbour and creeks have been subjected to special attention, as they have been found to provide ready breeding places for stegomyia.

Throughout the year plague continued epidemic in the town of Lagos and in the province of Ijebu-Ode. In Ijebu on the mainland the chief centre for plague is the town of Ijebu-Ode, but cases have been reported from numerous other towns in the province. In Lagos the number of cases of plague showed a short rise in March, and from the beginning of July there was a gradual rise which became more pronounced during October. From the latter part of October to the end of the year there was a very decided fall in the numbers. This rise and fall was accompanied by a similar rise and fall in the percentage of rats found to be suffering from plague. The majority of the cases were of the bubonic or septicæmic type, but a few patches of primary pneumonic cases occurred. In one of these the medical department lost a European surgeon and two African nurses, all infected from the same patient.

A League of Nations Study Tour.—In May the party of medical men organised by the League of Nations to take part in a tour of the West African colonies arrived in Lagos. Belgium, France, Spain, Portugal, Guatemala, South Africa, and Britain appointed medical men to take part in it. Sir Edward Thornton, who was appointed by the South African Government to coöperate, at the request of the Nigerian Government and with the permission of the Secretary of State and the South African Government, revisited Nigeria to examine the plague situation and to report on the most effective methods of dealing with it. As a result of his report, a special plague staff has been appointed to work under the control of Dr. W. Allan, senior officer of the sanitary branch of the medical department. A special R.A.M.C. staff, consisting of two majors and two captains, has been brought out to Nigeria, and the European sanitary inspection staff has been increased by 32 R.A.M.C. non-commissioned officers and privates. These are all employed in the anti-plague measures now being carried out in Lagos and Ijebu Province.

Vaccination continues to be actively pushed as a preventive against small-pox. The percentage of successful vaccinations is about 64. Quinine as a prophylactic against malaria has been distributed, particularly in the central province. The work on the investigation of the tsetse-fly and trypanosomiasis has continued throughout the year in the northern provinces. The centre of operations is at Sherifuri, in Kano Province. In addition to clearing of bush and thickets near pools and along the banks of rivers, experiments in late burning of the bush were carried out. As the effect of the first experiment in late bush burning on the prevalence of the fly was inconclusive, further experiments will be carried out next dry season.

The population of Nigeria (including the mandated area of the Cameroons), according to the latest returns, is 18,502,322 larger than that of any British dependency except India. There are about 4000 Europeans temporarily resident in Nigeria, chiefly in the employ of the Government and of mercantile and mining companies. The country is not suited for European settlement. Of the native inhabitants the greater number are of pure negro race, but in the north there are Berber and negroid tribes. The area of Nigeria is approximately 367,837 square miles. This includes the mandated portion of the Cameroons (31,150 square miles).

BITE OF A MADD DOG.

AN ancient recipe against rabies, dating probably from the beginning of the eighteenth century, is that of a certain Mr. John Barnardiston. It has been preserved among some 70 old manuscripts in the library of the Royal College of Surgeons of England, of which many were sent at different times to the College authorities by lay wellwishers anxious to impart to the professional mind useful information that might have escaped its notice. "You are to take six ounces

of rew," says Mr. Barnardiston, "four of garlic, four of mithrydate or treacle, four of scraped pewter or block tin; you are to boil these for the space of an hour in a closed pot, and give luke warm eight or nine spoonfuls to a man or woeman, in the morning fasting, 15 to a horse or cow, three to a sheep, and foure to a dogg. If any wound lay some of the dreggs to it, and 'twill heale it. Give it thre mornings following and then intermit thre, and so from thre to thre, till you have given it nine times."

The number nine strikes the note of magic, and this is emphasised in the next sentence: "If you have any faith in Charms the following words wrott on a peece of Cheese, and given the Dogg that's bitten I am told, has done wonderful cures.

Alnis, Alnis, Apelbusque
Arribas, Arribas, Apelbeseque
or
Carnis Darnis Farnis
Farnis Darnis Carnis.

"I depend upon none of these fooleries," adds the writer, doubtless in deference to the rationalism of his times, "but the first if timely given to my own knowledge is a certain cure." Mr. Barnardiston may be imagined as a kind of Will Wimble, writing to a patron, a second Sir Roger de Coverley, to whom he is perhaps related. "Pray, Sr, remember poore Pompey be sent to your cosen . . . who promised me he'd take care the Fellow I spake to should make him." The last phrase suggests, however, that Pompey is not a dog, but an inanimate object. "My service attends all the good Family," ends the writer.

The mystery of hydrophobia continued to puzzle the eighteenth century to the last. Charms were perhaps abandoned towards its close, but magic was still resorted to in domestic pharmacology. In the chapbook "A Thousand Notable Things, disclosed from the Secrets of Nature and Art, practicable, profitable, and of great advantage," which was published as late as 1791, we are gravely informed that "Hens Dung mixed with Meat that is given to be eaten of Mad Dogs, will take away their Madness from them (as it is thought)."

INFAMOUS CONDUCT.[1]

THE hope of the author is that the publication of an array of startling facts may bring about a reformation of the terms of censure passed by the General Medical Council upon transgressors, and the title which he has chosen puts him in a favourable position as a critic, for nobody defends that particular phrase in the Medical Acts, while very few persons have taken the trouble to find out how it got there. The story consists of a long series of episodes, any one of which may have occurred in the conduct of one medical practice, but few of which are likely to occur with any frequency in the practice of one man—the lamentable consequences which, following an unbroken sequence of disasters, form a category accordingly which is highly improbable. To use the events of such a peculiar medical career as an argument for "the reform of arbitrary rules and regulations relating to medical practice" is not logical; further, to make the argument for reform forcible the reiteration of misunderstanding and tragedy has turned what with due sense of proportion would have been a pathetic story into a wearisome one. The arrangement of the catastrophes in order to accentuate the drawn-out tragedy is so monotonous as to prevent all illusion that we are being presented with a picture of life, even though we may be familiar with the fact that any of the events might happen. The book is sad, earnest, and well-written, but not likely to stir unconvinced readers to agitate for reforms.

WELFARE OF MINERS.

IN the Northumbrian coalfield the Ashington Coal Company holds a premier place both by its size and by its reputation for efficiency combined with genuine care for the well-being of its 10,000 employees. The plant is up to date; underground roads are well kept and well supported, electrical coal-cutting is extensively practised, the screening apparatus is of the best, and the coal is sent in 20-ton wagons to the neighbouring port of Blyth. Ashington itself, a town of some 30,000 inhabitants, does not differ notably from any other mining town in the north of England, but three miles away, at Lynemouth, the company has built a model village, laid out by the seaside and comparing well with anything built in the newer coalfields. Many of the houses are being purchased by the tenants under a 15-year rent-purchase scheme. By arrangement with the Miners' Welfare Fund, pithead baths have been installed at two of the collieries of the group, the money required being advanced in the first place by the company. The baths are fairly well used, though there is some conservatism to contend with. The same conservatism has shown itself in connexion with the housing scheme at Lynemouth, where it was found necessary to instal the old-fashioned wasteful open ranges instead of modern stoves. The Ashington Coal Company has, of course, been involved with all the other colliery companies in the labour disputes of recent years. But it is a fair surmise that if all collieries had been as competently and as humanely managed the position of the coal industry to-day would be very different.

GOITRE AMONG MANCHESTER CHILDREN.

FURTHER investigation into the incidence of goitre among elementary school-children is recorded by Dr. Oswald Taylor in the latest annual report of the school medical officer for Manchester. The number of children examined was 13,578 (6396 males and 7182 females), and all enlargements of the thyroid were included, whether slight (not apparent on inspection) or considerable. No line was drawn between pathological and physiological enlargement. The distribution of goitre was found to vary with the nature of the superficial deposit over the triassic marls and sandstone on which Manchester lies. The endemicity was found highest where the surface deposit is largely clay (percentage incidence 8·8 in boys and 11·3 in girls), and lowest where the surface is glacial sand (3·7 in boys and 5·5 in girls). It was noticed that whilst many Jewish children attended the school clinics for various ailments, none attended on account of goitre. Among the Jews 1675 boys and 1808 girls were examined. Enlargement of the thyroid gland was found in 0·4 per cent. of the boys and 1·2 per cent. of the girls. None of these 3483 children were more than slightly affected. In one school, where 95 per cent. of the boys and 80 per cent. of the girls were Jewish, two boys and nine girls of Gentile stock were found to show enlargement of the thyroid and only one Jewess exhibited any signs of goitre. In another school largely attended by Jewish children ten cases of thyroid hypertrophy were found among the Gentiles but none among the Jews. "It seems clear," says Dr. Taylor, "that the endemicity among the Jewish children is low when compared with the prevalence among Gentiles living in the same neighbourhood attending the same schools and drinking the same water. Many of the Jewish children in Manchester are of Russian origin, and they eat rye bread of a dark coarse texture. It appears, moreover, that they eat more fish and poultry but less beef than their Gentile neighbours. The more indigestible pork they eschew on religious grounds. The pregnant Jewess is well cared for. Alcohol is not allowed, nor is she supposed to engage in outdoor employment from the beginning of pregnancy till the completion of lactation. As a rule the Jewish child is breast fed."

ESPERANTO AND MEDICINE.

AT the official Esperanto Congress which has just closed its session in Danzig, reference was made to medical use of this language. There are some 700 medical men distributed through 26 countries who use the language and who support a well-printed Esperanto medical magazine, the *Internacia Medicina Revuo*. During the proceedings of the Congress it was stated that the Medical Academy of Tokyo had unanimously adopted Esperanto as the official language in which a number of monographs by professors of the Pathological Institute of the Imperial University of Tokyo have already been printed. Some of these works, as well as reprints from the *Japanese Journal of Dermatology and Urology*, can be seen at the offices of the British Esperanto Association, 142, High Holborn, London, W.C. 1. Medical terms are already to be found in the larger Esperanto dictionaries, but for the use of doctors an official list of medical words is being compiled and published in the *Internacia Medicina Revuo*, while a list of drugs, compiled from 16 different pharmacopœias, with a common Esperanto translation, has been published in a report of a commission on pharmacological nomenclature. In a note in *International Language* on the use of the microphone to facilitate the translation of speeches at international congresses, a common language such as Esperanto is advocated, and in this connexion it is interesting to see that in Europe, Asia, Australia, and America there are 30 or more radio stations regularly broadcasting Esperanto lessons or talks.

HOSPITAL COÖRDINATION AT SHEFFIELD.—An advisory committee has met to report on hospital coördination between Sheffield, Bakewell, Barnsley, Doncaster, Denaby, Mexborough, and Worksop.

MANCHESTER BABIES HOSPITAL.—The increase in the number of beds has, says the annual report, necessitated a corresponding increase in the work of the doctors and the staff, and to meet this new appointments have been made. A junior resident medical officer, a second masseuse, and a biochemist have been appointed.

[1] Infamous Conduct. By "Medicus." London: Henry Walker, John-street, Adelphi. Pp. 285. 6s.